Catalogue of Traditional Mountain Crop Landraces in Nepal

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LI-BIRD (Pokhara, Nepal; www.libird.org)
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Dedication page: Late Dr. Bhuwon Ratna Sthapit in participatory plant breeding rice field in Begnas. Photo: Sajal Sthapit (2008).

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Dedication

This publication is dedicated to late Dr. Bhuwon Ratna Sthapit for his remarkable contribution to agrobiodiversity and participatory plant breeding. He devoted his whole life to research, conservation and utilization of plant genetic resources. He had played instrumental role in conceptualizing this landraces catalogue and team wants to remember his guidance and support upon its completion.

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Acknowledgement

This catalogue is a result of combined efforts of the people engaged actively and continuously in a UNEP/GEF funded project “Integrating traditional crop genetic diversity into technology: using a biodiversity portfolio approach to buffer against unpredictable environmental change in the Nepal Himalayas” being implemented in four districts Dolakha, Lamjung, Humla and Jumla of Nepal. This catalogue endeavours to gather and compile the information on local diversity of eight traditional mountain crops; amaranth, barley, naked barley, common bean, buckwheat, finger millet, foxtail millet and cold tolerant rice found in the project sites.

The authors would like to acknowledge the contribution made by site team members namely Brinda Kumari Linkha, Shreeram Subedi, Sundar Rawat and Lalita Ale Magar in the data collection process and its validation at the field. We are equally grateful to Bharat Bhandari, Sajal Ratna Sthapit and Pitambar Shrestha, LI-BIRD for their guidance and critical feedbacks in improving the overall quality of the catalogue. Most importantly, the project team extends its sincerest acknowledgement and gratitude to the farming communities for putting their efforts on maintaining, utilizing and conserving these crops and their diversity and providing information to the project team which made this publication happen.

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Acronyms

ARS	Agriculture Research Station
BI	Bioversity International
cm	Centimeter
DFS	Diversity Field School
DoA	Department of Agriculture
FCA	Four Cell Analysis
FGD	Focus Group Discussion
GEF	Global Environment Facility
ha	Hector
HCRP	Hill Crop Research Programme
HH	Household
kg	Kilogram
LCP	Local Crop Project
LI-BIRD	Local Initiatives for Biodiversity, Research and Development
masl	meter above sea level
mm	Millimeter
NAGRC	National Agriculture Genetic Resources Center
NARC	Nepal Agricultural Research Council
NS	Non Significant
PMU	Project Management Unit
PRA	Participatory Rural Appraisal
RMC	Rural Municipality
Km^2	Square Kilometer
SDC	Swiss Agency for Development and Cooperation
UNEP	United Nation Environment Programme
VDC	Village Development Committee
yr	Year

Foreword

Agricultural biodiversity is a means to build resilience against human-induced uncertain climatic conditions. The farming communities for generations have engaged continuously in building resilient agriculture ecosystem by conserving diverse plant genetic resources through their use and maintenance. This catalogue documents existing landraces and communities' traditional knowledge of eight traditional mountain crops (amaranth, barley/naked barley, bean, buckwheat, finger millet, foxtail millet, proso millet and cold tolerant rice) cultivated in the mid-to high-hills of Nepal. The catalogue provides key descriptive characters/traits, use value of each landrace along with the functional and adaptable domain.

The study documents rich plant genetic diversity maintained by farming community and is expected to serve as a baseline for future research and development initiative. The catalogue also documents the status of each landrace studied. We believe that the information on unique, rare and important landraces documented and disseminated through this study will draw attention of policy makers, researchers and national agriculture research and extension system, as well as attract more investment in local crop research and development in future. We also believe that this catalogue will serve as a resource for young aspiring researchers, development professionals, seed suppliers and farmers in the field of agrobiodiversity conservation and strengthening local seed system of important traditional mountain crops in Nepal.

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1. Introduction

Crop diversity plays a vital role and is essential to overcome the problem of food and nutritional security globally, and is vital for the pro-poor farming communities encircled by confrontational effect of global and local climate change. Furthermore, it sets a milestone in climate change adaptation, ecological resilience and environmental sustainability. Nepal is rich in agricultural diversity with 599 species of edible genetic resources out of which 225 indigenous species are under cultivation (Joshi et al., 2016). Nepalese farming communities have depended on local and indigenous crops for meeting their subsistence. In doing so, farmers have relentlessly engaged in conserving, managing and utilization of plant genetic resources and these efforts have helped to conserve the agrobiodiversity richness. The farmers knowledge on describing and distinguishing the crops and their varieties and to use them in cultivation for harvesting better yield have continuously perpetuated from one generation to other. This knowledge can play an important role on developing preferred crop varieties that can be utilized for improving yield, food security and resilience to climate change. Farmers' long-evolved knowledge on conservation and use of local genetic resources is very useful in crop improvement research. Furthermore, several researcher have demonstrated the potentialities of combining such treasured knowledge with scientific activities for the food production and crop improvement. However, there has been very few efforts to document varietal information of traditional farmers' crop varieties along with associated local and indigenous knowledge for subsequent incorporation and utilization in agricultural research and development. Lately participatory approaches are deployed in agricultural research and extension considering the potential gain in crop improvement, though it requires optimization of such valuable information. There is a huge risk of losing such knowledge with the depletion of utilization and conservation of such local crop genetic resources.

Building on the understanding of importance and potentialities of such inherited, local and indigenous knowledge, it was realized that documentation of knowledge itself will add a significant value in acknowledgment of farming communities and local crop genetic resources. Hence, through the initiation of project, an attempt of compiling the information about the local crop genetic resources of the traditional mountain crops focusing on farmers' varieties (landraces) is made in the form of a catalogue. The purpose of this farmer's variety catalogue is to provide information on local crop landraces to farmers and all stakeholders to maximize the benefits of farmers' efforts in conservation of local landraces and to serve as an important repository for landrace information of traditional underutilized mountain crops of Nepal. The catalogue is targeted to both farming communities and researchers including agricultural scientists, extension workers, private seed suppliers, students and enthusiasts. It is expected that this catalogue will pave a milestone as such and will provide a solid foundation for conservation and utilization of local landraces for crop improvement and local food production program. Lastly, it is assumed that valuing farming communities for maintaining such rich diversity and knowledge for millennia will provide enticement for safeguarding of native genetic resources conserved by farming communities over generation.

1.1 Objectives

- To document the existing local diversity and local knowledge about the traditional mountain crops and their crop varieties in the project sites.
- To provide information on farmers' local crop varieties to farmers and all stakeholders to serve as an important repository of traditional mountain crop varieties of Nepal
- To acknowledge the local farming communities and farmers and their collective and individual efforts for management and conservation of such valued local varieties and their knowledge.

2. Project Profile and Mandate Crops

Considering the global and local importance of traditional high mountain crops in securing food and nutrition security and improving ecosystem resilience of the region, the project entitled "Integrating traditional crop genetic diversity into technology: using a biodiversity portfolio approach to buffer against unpredictable environmental change in the Nepal Himalayas" is being implemented in Nepal since 2014/15. The project which is locally known as Local Crop Project (LCP) is working in Humla, Jumla, Lamjung and Dolakha, four districts representing the different rainfed regimes of the mountain areas of Nepal spanning from the east to the western Himalayas (Figure 1). The project is jointly implemented by National Agricultural Research Council (NARC), Local Initiatives for Biodiversity, Research and Development (LI-BIRD) and Bioversity International (BI) with financial support from Global Environment Facility (GEF)/ United Nations Environment Programme (UN Environment). The objective of the project is "to mainstream the conservation and use of agrobiodiversity in the mountain agricultural production landscapes of Nepal to improve ecosystem resilience, ecosystem services and access and benefits sharing capacity in mountain ecosystems." It aims to develop and promote diverse sets of varieties, improve access to diverse sets of planting materials, create and distribute drudgery-reducing processing technologies, and promote an enabling environment for access to the benefit-sharing of seeds and other planting materials. The project focuses on supporting use of the rich and unique intraspecific diversity of crops that are of global importance to mountain agricultural environments, in order to buffer against the increasing unpredictability in terms of volume and occurrence of the rainfall, temperature extremes, and the frequency and severity of pest and pathogen occurrence in the mountains of Nepal and elsewhere.

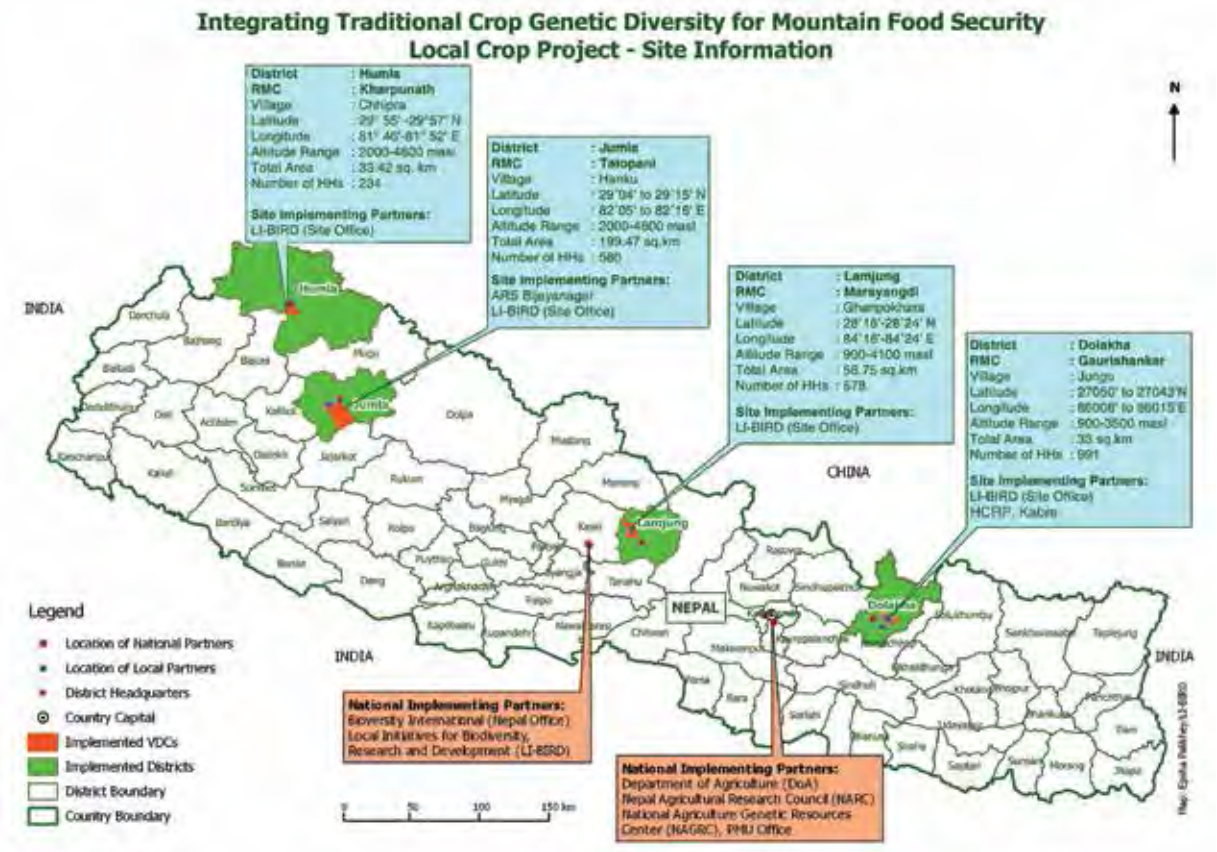


Figure 1: LCP working areas showing implementing partners at respective sites

This 'traditional crop landrace catalogue' covers eight traditional mountain crops' local landraces being cultivated in high mountain region of Nepal (LCP sites). These eight mandate crops of the project as listed in table 1 are traditionally cultivated, nutrient dense and important in maintaining climate resilience of the region and yet neglected and underutilized species from research and development sector. A brief description of these project mandate crop is presented below:

Table 1. Mandate crop species, their local and scientific names, type of pollination system and genetic features

S.N.	Crop	नेपाली नाम	Scientific name	Pollination	Genetics
1.	Amaranth	लट्टे	*Amaranthus hypochondriacus* *A. caudatus* L. *A. cruentus* L. *A. dubius*	SP	2n=2x=32 2n=2x=34 2n=2x=32
2.	Barley	जौ	*Hordeum vulgare* L.	SP	2n=2x=16
	Naked barley	उवा	*Hordeum vulgare* L. var. *nudum* Hook. f.	SP	2n=2x=14
3.	Bean	सिमि	*Phaseolus vulgaris* L.	SP	2n=2x=22
4.	Buckwheat (Tartary)	तिते फापर	*F. tataricum* Gaertn.	SP	2n=2x=16
5.	Buckwheat (Common)	मिठे फापर	*Fagopyrum esculentum* Moench.	CP	2n=2x=16
6.	Finger millet	कोदो	*Eleusine coracana* Gaertn.	SP	2n=4x=36
7	Foxtail millet	कागुनो	*Setaria italica* (L.) P. Beauv.	SP	2n=2x=18
8.	Proso millet	चिनो	*Panicum miliaceum* L.	SP	2n=2x=18
9	Rice	धान	*Oryza sativa* L.	SP	2n=2x=24

SP- self-pollinated; CP – cross-pollinated

Amaranth (*Amaranthus spp.*): Amaranth (*Latte, Marshe* in Nepali) is considered as one of the ancient crops grown especially in South America, Asia and Africa, and believed to be originated from Central and South America. It is a nutritious crop, rich in crude calcium, iron, magnesium, potassium and zinc crude fiber, Vitamin C, B6 and A. Amaranth species such as *Amaranthus caudatus* L., *Amaranthus cruentus* L., and *Amaranthus hypochondriacus* L. are used for grain purpose. Amaranth species are also consumed as a leafy vegetable in many parts of the world. Four species (*Amaranthus cruentus*, *A. blitum, A. dubius* and *A. tricolor*) of Amaranth have been documented as cultivated vegetables in eastern Asia. In Nepal, amaranth is consumed as grain in high-hills of Karnali region and leafy green vegetables in mid-hills and Terai region.

Barley (*Hordeum vulgare* L.) and Naked Barley (*H. vulgare* var. *nudum*): Barley (*Jau* in Nepali*)* and Naked Barley (*Uwa* in Nepali) are among the major cereal crops grown in temperate climate globally. It is one of the first cultivated grains particularly in Eurasia and is a member of grass family. In Nepal, it is grown in diverse geographical regions from terai to high hills up to 4000masl as a winter cereal crop. It is well adapted to the harsh environment and marginal agro-ecological conditions such as low soil fertility and low input in high hills of Nepal. It is an excellent source of complex carbohydrates that helps to lower cholesterol levels and the risk of type-2 diabetes.

Bean (*Phaseolus vulgaris*): It is also known as common bean or kidney bean (*Simi* in Nepali), and is a herbaceous annual plant grown worldwide for its edible dry seeds or green pods. It is predominantly grown in high mountain agro-ecosystem of Nepal where it serves as the major source of vegetable protein. Green pods are cooked as vegetables whereas dried beans either milled or grain is cooked as pulses/soup. Karnali region of Nepal is known for its high common bean diversity and mixture cultivation is a common practice.

Buckwheat (*Fagopyrum spp.*): Buckwheat (*Phapar* in Nepali) is one of the minor food crops, grown in the temperate and hilly countries of Europe, East Asia and the Himalayan region. It is believed to be domesticated and first grown in Southeast Asia and then spread to Central Asia and Tibet and subsequently to the Middle East and Europe. It is a short season crop and does well on low-fertility soil, moisture stresses, and cool temperature in remote hilly regions of Nepal. Common buckwheat (*F. esculantum* Moench.) and Tartary buckwheat (*F. tartaricum* Gaertn.) are cultivated in mid and high hills in western and far western region of Nepal. It is consumed as gluten free flour and also used as leafy green vegetable.

Millets represent a set of small seeded grasses that are grown for cereal and fodder worldwide especially in dry areas of temperate, subtropical and tropical region. Three types of millets, finger millet, proso millet and foxtail millet, are commonly grown from mid hill to high hill mountainous region of Nepal. They are considered as hardy crop with wide range of adaptability and possess good nutritional values.

Finger Millet (*Eleusine coracana* Gaertn): Finger millet (*Kodo* in Nepali) is the mostly widely grown small millet in world. It is one of the major cereal crop in Nepal after rice, maize and wheat and is mainly cultivated in mid hills ranging between 600-2000 m. Maize based cropping system is prevalent in mid hill region. It is a good source of calcium, iron, fibre and amino acids and also has traditional and cultural importance in some indigenous community of Nepal.

Foxtail Millet (*Setaria italica* (L.) P. Beauv): Foxtail millet (*Kaguno* in Nepali) the second most commonly grown species of millet after pearl millet (*Pennisetum glaucum*). It has a long history of cultivation in East Asian countries mainly China, where it has been grown since the sixth millennium BC. In Nepal it is used as a food grain and in high-hills and mid hills mainly in the districts of the Karnali zone. It is used to be common in other parts of the country as well including Kaski and Lamjung.

Proso Millet (*Panicum miliaceum* L.): Proso millet (*Chino* in Nepali) is an annual grass majorly grown in the temperate parts of the world. It is a short growing crop under limited water availability thus considered as climate resilient crop. It is gluten free food, and consists of essential minerals, especially potassium. It is traditionally grown as one of the staple crops especially in Karnali region in Nepal.

Rice (*Oryza sativa* L.): Rice (*Dhan* in Nepali) is most commonly consumed staple food, especially in Asia. In Nepal, rice contributes significantly to food security and it is grown across the agro-ecosystems from foot-hills to highhills. Nepal is known for growing rice in the highest altitude and many cold tolerant rice landraces are maintained by farmers.

3. Methodology

In this section, the methodologies for collection and compilation of the information and data for preparation of this catalogue has been presented. The detailed steps followed for preparation of this catalogue is presented in figure no. 2.

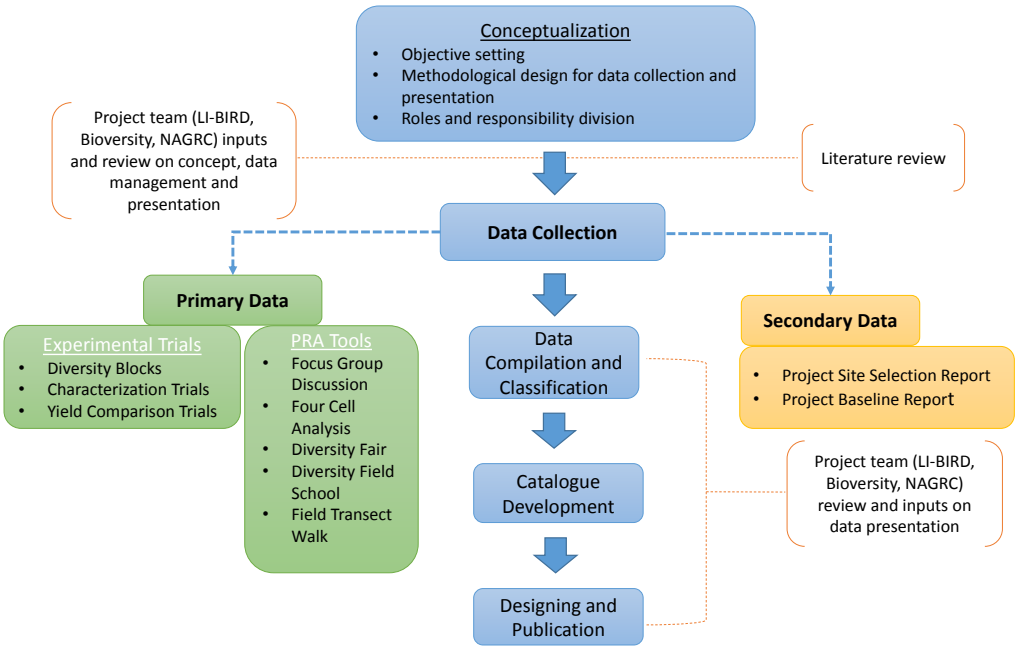


Figure 2: Steps followed in preparation of landraces catalogue

Furthermore, this section also explains how particular data for particular characters of the local crop genotypes are generated and composed. Several participatory tools and experiments were employed for information collection and compilation which are discussed under following headings.

a. **Baseline and Site Selection Report:** In general, baseline and site selection reports are commonly understood as a document, explicitly describing about the analysis of the present status any subject, situation, place or role/responsibility or similar thing which later serves as tool to identify the interventions (intentional/unintentional; artificial/natural) to be performed and provide basis for comparison of the effects (positive/negative) brought by the interventions carried out. In this catalogue, the data and information related to landraces from the baseline report of the sites has been intentionally used. Moreover, the major part of the introduction of the sites and crop varieties are extracted from baseline reports.

b. **Diversity Block:** An on-farm experimental blocks consisting the farmers' varieties where the varieties are grown in non-replicated plots, which not only facilitates measurement and analysis of agro-morphological traits, but also can be used to validate farmers' descriptor, raising public awareness about the local varieties and regeneration of seeds of local and rare crop varieties for in-situ and ex-situ conservation. The local varieties of traditional mountain crops were planted in the diversity block in the growing season in each of the site. In this catalogue, the measurement of agro-morphological traits were gathered and validated by using tool of diversity block of traditional crops listed here.

c. **Diversity Fair:** It is a participatory tool of bringing farmers and farming communities from different local communities together to exhibit diversity of landraces mainly aimed for raising awareness on how valuable the local diversity is, and encouraging farmers to share the local knowledge on farmers varieties and exchange seeds. This tool has been successful in transmission of seed materials and knowledge of local crops and varieties ultimately aiding to conservation of such valued landraces. One of the participatory tools used for preparing the inventory of local varieties of mandate crops in each site was diversity fair. Furthermore, same platform provided the local and vernacular name of major local varieties as well as traditional knowledge of the local landraces included in this catalogue.

d. **Diversity Field School:** Diversity field school (DFS) is a community based knowledge and action platform that facilitates the use and maintenance of diversity in the production system both as a way of risk minimization (from pest & disease damage or climate variability) as well as providing farmers' access to knowledge, planting materials, credit and networks. While this platform can take various forms depending on local context, and same platform was used for gathering various data regarding local crops and cultivars and knowledge more relating to general information, information about agronomic and consumption traits and validation, use value and adaptability.

e. **Focus Group Discussion:** Focus group discussion (FGD) is a participatory tool where group made up of individual/ stakeholders sharing similarity in different aspects of agendas and where these group of people can open up their ideas/knowledge for discussion that could not (or could be with difficulties) be expressed in individual or in larger mass. Generally it is carried out to gather lot of information in short period of time. Apart from DFS discussions, several focus group discussions were organized to compile the information about the local crops and varieties, their diversity and knowledge linked with them. Information starting from simple general information till the farmers' perception about the crop varieties they grow in terms of use value and functional traits of the crop varieties and adaptability. FGD was also used as a platform to validate information compiled using other methods.

f. **Four Cell Analysis:** Four cell analysis (FCA) is a common participatory tool which has been globally employed for systematic analysis of status and distribution of local crop diversity and helping the process of identification of common, unique and rare plant genetic resources. This tool facilitates farming communities and researchers for assessing diversity, developing diversified livelihood option and conservation plans. It is used here to identify most common, rare and unique landraces of traditional mountain crops and documenting their unique traits.

g. **Transect Walk:** Transect walk involves joint travel/walking of multidisciplinary team of researchers and farmers together across the cultivated landscapes of the topics of the interest. This was carried out mainly during initial site selection and joint monitoring field tours and visits. This tool was used to directly observe, understand and validate farmers crop varieties, their unique traits and associated traditional knowledge of the traditional mountain crops.

The collected information were categorized into five major headings namely general information, agronomic traits, current status of landrace, use value and adaptability. This section tries to explain what each of the five headings depicts furthermore detailing about each of the traits under these major heading. The details are presented below.

Table 2. List of information included on landraces catalogue

SN	Particulars	Key Description	Method of Information Collection
A. General Information			
1	Landrace Name	Local name of the crop (commonly used by the community)	Baseline Survey DFS
2	Major Locality	Pre-dominant ward/location where Landrace is mostly grown	Baseline Survey. Site Selection Survey, DFS
3	Local Name	Local name in the community	FGD
4	Farmers Descriptor (*Huliya*)	Unique traits of the crop based on farmers' perception and field trial	Baseline Survey; FGD DFS Diversity Block; Transect Walk, Field Monitoring Visits
B. Agronomic Traits			
6	Agronomic Traits	Plant height (cm), Days to flowering (50%) Days to maturity	Diversity Block Field Visits
7	Yield	Average from at least 10 farmers field of 10 m^2	Baseline Survey Diversity Block Crop Cut
C. Current Status of Landrace			
8	Area of Cultivation	Average area- Ropani per Household (HH)	Baseline Survey DFS
9	Percentage (%) of HHs cultivating the Landrace in village	Baseline Survey or VDC census	Baseline Survey DFS

SN	Particulars	Key Description	Method of Information Collection
10	Conservation Status	A- Common B- Vulnerable C- Vulnerable D- Rare/ Endangered	Based on FCA - Crops were categorized in to four groups A- Cultivated in large area by many HHs; B- Cultivated in large area by few HHs; C- Cultivated in small area by many HHs; D- Cultivated in small area by few HHs
11	Cultivation Trend	1 - Increasing 2 - Stable 3 - Decreasing	FGD, DFS, Baseline Survey
D. Use Value			
12	Nutritional Qualities	Perceived traits by farmers such as appetite suppressant, nutritious, medicinal values, minerals rich	FGD, DFS, Transect Walk
13	Market Traits	Peculiar traits or characters such as aroma, flavour	Baseline Survey DFS
14	Uses	Food culture with name of local cuisine; preferably meaning of local name too	Baseline Survey DFS FGD, Diversity Fair
15	Organoleptic Quality	Farmers' perceived knowledge on aroma, taste, cooking and eating quality	Baseline Survey and FGD
E. Adaptability			
16	Response to Abiotic and Biotic Stresses	Farmers' perceived qualitative information on varietal response to abiotic (eg. drought, cold, frost, rain) and biotic (major diseases and insects/pests)	Baseline Survey and FGD Disease Survey
17	Adaptation	Farmers' perceived knowledge; co-adapted complex; altitude range; south or north facing; rain fed or irrigated; cold water; intercropped; mixed or mixture;	Baseline Survey DFS and FGD

4.1 Dolakha

4.1.1 Overview of Jungu, Dolakha

Map of Dolakha showing Jungu and Gaurishankar Rural Municipality

Geography	27^{0}50' to 27^{0}43' north and 86^{0}08' to 86^{0}15' east, Area: 33 Km^2, Altitude: 950masl to 3000masl
Climate	Temperature: 30 ^{0}C min to 22 ^{0}C max, Avg. Annual Rainfall: 2000 mm/yr. Climatic variation ranges from sub-topical, warm temperate, cool temperate to sub-alpine.
Demography	Total HH no: 938, Pop: 3,882 (1,791 Male and 2,091 Female) Literacy: 56.3%, Avg. Family size: 4.1.
Average farm size (ropani/HHs)	8.25 ± 0.62 (0.41 ±0.01 ha/HH)
Ethnicity	Brahmin/Chhetri (69%), Janjati (20%) and Dalit (11%)
Varietal Richness of Mandate Crops	Amaranths-3, Barley-1, Naked Barley-1, Beans-10, Buckwheat-2, Finger Millet-11, Rice-13

Source: Jungu VDC Profile (2009) and Pudasaini et al. (2016)

Jungu village (former Jungu VDC) lies in ward no 1 and 2 of Gaurishankar rural municipality, Dolakha covering an area of 33 Km^2. It is located on the north-eastern slope of the Tamakoshi river watershed and settlements are arranged in south-west and west-north facing hillside. 60% of total land is covered with forest while 40% is arable land (Jungu VDC Profile, 2009). A crop-livestock integrated farming system is the most common livelihood strategy in Jungu where agriculture is the main source of livelihood and food security. Besides, it is supported by off-farm income sources, like seasonal migration for non-agricultural labour, foreign employment, and government services/jobs. Due to the increased trend of youth migration, farming systems have remained at the subsistence level and has resulted in increased drudgery to female household member (Pudasaini et al., 2016).

Traditional farming system of Jungu consists of agronomic crops (rice, wheat, maize, finger millet, buckwheat and barley), horticultural crops (orange, lemon, banana, vegetables, and potato) and livestock (goat, poultry, buffalo and cattle). Two distinct cropping pattern could be found depending upon the type of land viz. lowlands (*Khet*) and uplands (*Bari*). The lowland areas are more feasible to irrigation in summer allowing the cropping pattern of rice – wheat/buckwheat/ rapeseed – rice, whereas, maize/potato – finger millet – wheat/buckwheat – Maize cropping pattern is predominant in uplands. Seasonal cropping calendar is also different depending on land type and altitude (Annex 4).

Out of eight projects mandate crops, six crops are grown in Jungu and they are amaranth, common beans, buckwheat, naked barley, finger millet and rice. Proso millet and foxtail millet are not grown from the primitive time. Among these crops, rice and finger millet are most commonly cultivated crops aiding to the food security of the region. Both the crops possess the highest level of varietal richness followed by common beans, amaranth and buckwheat. Barley and buckwheat are mainly grown for cultural values so are cultivated by many households in the smaller area.

Amaranth
Rato Latte
(रातो लट्टे)

A. General Information

Crop	Amaranth
Scientific name	*Amaranth caudatus* L.
Landrace	Rato Latte (रातो लट्टे)
Major locality	Dahabari, Majh Gaun
Local name	Latte (लट्टे)
Farmers descriptor (Huliya)	Red grain, red petiole, red pigmented leaves, red dropping inflorescence

B. Agronomic traits

Plant height (cm)	230-250
Days to flowering	70-80
Days to maturity	120-130
Potential yield (kg/ropani)	20-25

C. Current status of the landrace

Area of cultivation (m^2/HH)	3 ± 1.12
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron & vitamin, medicinal use
Market traits	Nothing significant
Uses	Roasted grains as snacks, *Laddu*
Organolpetic quality	Earthy smell, bad as green leafy vegetable

E. Adaptability

Response to abiotic and biotic stresses	Able to tolerate higher dose of fertilizer, drought tolerant
Adaptation	Dry south facing slopes and highly fertile soil

Amaranth

Kalo Latte (कालो लट्टे)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus dubius*
Landrace	Kalo Latte (कालो लट्टे)
Major locality	Dahabari, Majh Gaun
Local name	*Latte* (लट्टे)
Farmers descriptor (*Huliya*)	Dark green soft leaves, black tiny grain, green erect inflorescence

B. Agronomic traits

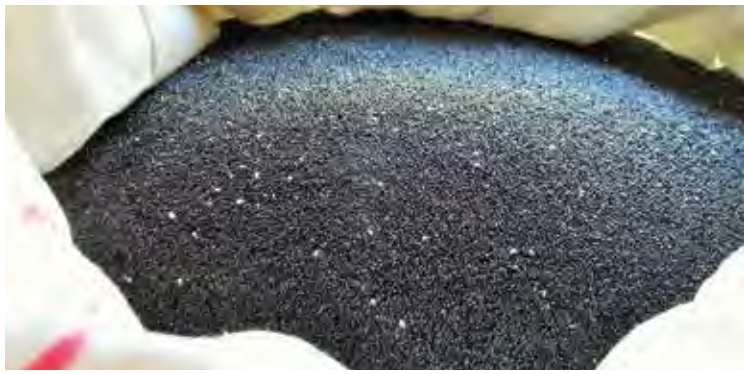
Plant height (cm)	110-140
Days to flowering	90-100
Days to maturity	130-140
Potential yield (kg/ropani)	10-15

C. Current status of the landrace

Area of cultivation (m^2/ HH)	2 ± 2.41
% of HHs cultivating the landrace	2
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron and vitamin, medicinal use
Market traits	Delicate green leaves
Uses	Green leaves as vegetable
Organolpetic quality	Smooth textured leaves



E. Adaptability

Response to abiotic and biotic stresses	Able to tolerate higher dose of fertilizer, drought tolerant
Adaptation	Dry south facing slopes and highly fertile soil

Amaranth
Seto Latte
(सेतो लट्टे)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus sps.*
Landrace	Seto Latte (सेतो लट्टे)
Major locality	Dahabari, Majh Gaun
Local name	*Latte* (लट्टे)
Farmers descriptor (*Huliya*)	Yellowish green, erect inflorescence, white grain creamy colour petiole

B. Agronomic traits

Plant height (cm)	210-250
Days to flowering	70-80
Days to maturity	120-130
Potential yield (kg/ropani)	20-27

C. Current status of the landrace

Area of cultivation (m^2/HH)	6 ± 1.35
% of HHs cultivating the landrace	2
Conservation status	Rare/Endangered
Current trend of the land-race	Stable

D. Use value

Nutritional qualities	Rich in iron and vitamin, medicinal use
Market traits	Nothing significant
Uses	Roasted grains as snacks, *Laddu*, leaves and stem used for making pickle
Organolpetic quality	Earthy smell in leafy vegetable

E. Adaptability

Response to abiotic and biotic stresses	Fertilizer responsive, drought tolerant
Adaptation	Dry south facing slopes and highly fertile soil

Naked Barley

Mudule Uwa

(मुडुले उवा)

A. General Information

Crop	Naked Barley
Scientific name	*Hordeum vulgare* L. *var. nudum* Hook. F.
Landrace	Mudule Uwa (मुडुले उवा)
Major locality	Darkha, Chetpu, Rajapu, Manjh Gaun
Local name	*Uwa* (उवा)
Farmers descriptor (*Huliya*)	Awnless grain, broken short awn, hullless grain

B. Agronomic traits

Plant height (cm)	80-90
Days to flowering	85-90
Days to maturity	105-110
Potential yield (kg/ropani)	90-95

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.7 ± 0.26
% of HHs cultivating the land-race	6
Conservation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Good for brewery and *Satu*
Uses	Roasted grains snacks, *Satu, Sel-roti*
Organolpetic quality	Good flour quality, tasty and high milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Drought and cold tolerant, lodging resistant and rust tolerant
Adaptation	Sloppy and dry upland areas

Barley
Tude Jau
(टुडे जौ)

A. General Information

Crop	Barley-Hulled
Scientific name	*Hordeum vulgare* L.
Landrace	Tude Jau (टुडे जौ)
Major locality	Darkha, Rajapu
Local name	*Jau* (जौ)
Farmers descriptor (*Huliya*)	Long and spiky awned grain, hulled grain

B. Agronomic traits

Plant height (cm)	70-80
Days to flowering	90-95
Days to maturity	115-120
Potential yield (kg/ropani)	80-85

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.1 ± 0.19
% of HHs cultivating the landrace	34
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Cultural use
Uses	*Satu*, livestock feed, cultural use among Hindus, Biomass as fodder
Organolpetic quality	Tasty as *Satu*

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, cold tolerant, non lodging, rust tolerant, hail tolerant
Adaptation	Dry upland areas

Common Bean

Pahenlo Simi
(पहेंलो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Pahenlo Simi (पहेंलो सिमी)
Major locality	Darkha, Maula, Rajapu, Gairi, Chhap
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Shiny yellow grains, curved pod with smooth surface

B. Agronomic traits

Plant height (cm)	350-400
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	170-190

C. Current status of the landrace

Area of cultivation (m^2/HH)	8 ± 1.64
% of HHs cultivating the landrace	40
Conservation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	High protein and appetite suppressant
Market traits	Dual purpose (green pod and dry grain), tasty
Uses	*Daal*, roasted cake (*Biramla*), green pods as vegetable
Organolpetic quality	Tasty *Daal* and Curry

E. Adaptability

Response to abiotic and biotic stresses	Low water demanding, susceptible to anthracnose disease
Adaptation	All types of lands of mid-hill areas, dry and sunny uplands

Common Bean
Khairo Ghiu Simi
(खैरो घिउ सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Khairo Ghiu Simi **(खैरो घिउ सिमी)**
Major locality	Darkha, Maula, Rajapu, Gairi, Chhap
Local name	*Simi* **(सिमी)**
Farmers descriptor (*Huliya*)	Kideny shaped shiney brown grains

B. Agronomic traits

Plant height (cm)	350-400
Days to flowering	55-60
Days to maturity	110-115
Potential yield (kg/ropani)	170-190

C. Current status of the landrace

Area of cultivation (m^2/HH)	10.41 ± 2.66
% of HHs cultivating the landrace	27
Consevation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	High protein and appetite suppressant
Market traits	Dual purpose (green pod and dry grain), tasty
Uses	*Daal*, roasted cake *Biramla*, green pods as vegetable
Organolpetic quality	Tasty *Daal*

E. Adaptability

Response to abiotic and biotic stresses	Low water requirement, susceptible to anthracnose disease
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Common Bean
Kalo Simi
(कालो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Simi (कालो सिमी)
Major locality	Darkha, Resham Dada, Maula
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Dark purple round grain, light pink inflorecense, black pigmented pod color

B. Agronomic traits

Plant height (cm)	210-250
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	145-155

C. Current status of the landrace

Area of cultivation (m^2/HH)	7.7 ± 1.55
% of HHs cultivating the landrace	23
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron and protein
Market traits	Nothing significant
Uses	*Daal*, roasted cake *Biramla*, green pods as fresh vegetable
Organolpetic quality	Tasty grain for curry

E. Adaptability

Response to abiotic and biotic stresses	Low water demanding, disease resistant
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Common Bean
Rato Chhirke
(रातो छिर्के सिमी)

A. General Information

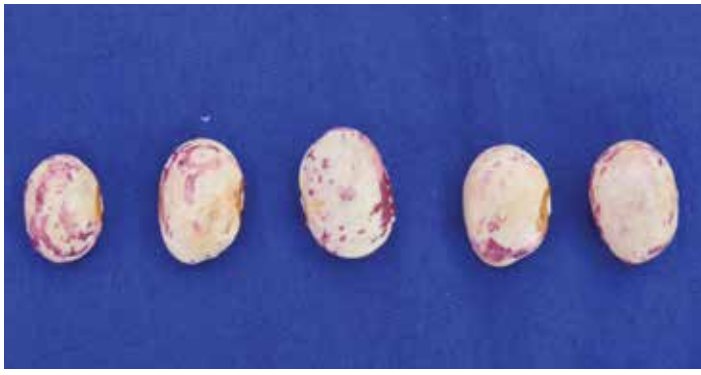
Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Rato Chhirke Simi (रातो छिर्के सिमी)
Major locality	Bojampu, Yarsha
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Round white grain with red stripes, light purple color flower, red pigmented pods

B. Agronomic traits

Plant height (cm)	230-250
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	145-155

C. Current status of the landrace

Area of cultivation (m^2/HH)	12.7 ± 6.45
% of HHs cultivating the land-race	7
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing



D. Use value

Nutritional qualities	High protein and fiber
Market traits	Good market value as grain/ seed
Uses	Daal, roasted cake *Biramla*, green pods as vegetable
Organolpetic quality	Good for *Daal*, cooks easily

E. Adaptability

Response to abiotic and biotic stresses	Low water requirement, disease resistant
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Common Bean
Seto Simi
(सेतो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Seto Simi (सेतो सिमी)
Major locality	Bojampu, Gairi
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Kideny shaped small white grains, light green color pod

B. Agronomic traits

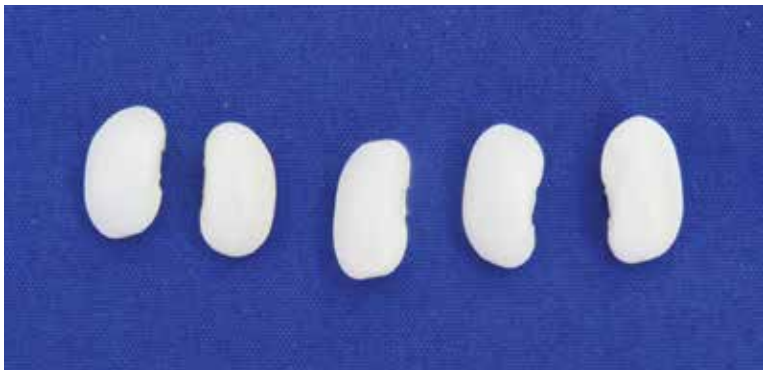
Plant height (cm)	290-315
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	115-120

C. Current status of the landrace

Area of cultivation (m^2/HH)	12.3 ± 4.96
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High protein and fiber
Market traits	Nothing significant
Uses	Green pods as fresh vegetable, *Daal*
Organolpetic quality	Good for *Daal*, cooks easily



E. Adaptability

Response to abiotic and biotic stresses	Low water requirement, disease resistant
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Common Bean
Kalo Chhirke Simi
(कालो छिर्के सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Chhirke Simi (कालो छिर्के सिमी)
Major locality	Bojampu, Darkha
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	White round grains with black stripes, purpule color flower, black pigmented pods

B. Agronomic traits

Plant height (cm)	250-300
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	140-150

C. Current status of the landrace

Area of cultivation (m^2/HH)	3 ± 2.9
% of HHs cultivating the landrace	2
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High protein and fiber
Market traits	Good market value as grain/seed
Uses	Green pods as fresh vegetable, dry grains as curry
Organolpetic quality	Good for *Daal* and curry

E. Adaptability

Response to abiotic and biotic stresses	Low water demanding, disease resistant
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Common Bean
Kailo Simi
(कैलो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kailo Simi (कैलो सिमी)
Major locality	Darkha, Maula, Rajapu
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Kideny shaped light gray color grains

B. Agronomic traits

Plant height (cm)	270-320
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	115-125

C. Current status of the landrace

Area of cultivation (m^2/HH)	6 ± 1.55
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High protein and fiber
Market traits	Nothing significant
Uses	*Daal*, roasted cake *Biramla*, green pods as fresh vegetable
Organolpetic quality	Fresh pod

E. Adaptability

Response to abiotic and biotic stresses	Low water requirement, disease resistant
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Common Bean
Sano Pahenlo Simi
(सानो पहेंलो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Sano Pahenlo Simi (सानो पहेंलो सिमी)
Major locality	Darkha, Maula, Rajapu, Gairi, Chhap
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Small round yellow grain

B. Agronomic traits

Plant height (cm)	230-300
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	115-125

C. Current status of the landrace

Area of cultivation (m^2/HH)	15 ± 3.66
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High protein and fiber
Market traits	Nothing significant
Uses	*Daal*, roasted cake *Biramla*, green pod as fresh vegetable
Organolpetic quality	Soft pods for green vegetable

E. Adaptability

Response to abiotic and biotic stresses	Low water requirement, susceptible to anthracnose disease
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Common Bean

Gada Pahenlo Simi

(गाढा पहेंलो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Gada Pahenlo Simi (गाढा पहेंलो सिमी)
Major locality	Darkha, Maula, Rajapu, Gairi, Chhap
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Dark yellow, semi rounded small grain

B. Agronomic traits

Plant height (cm)	240-300
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	140-150

C. Current status of the landrace

Area of cultivation (m^2/HH)	12± 2.15
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High protein and fiber
Market traits	Nothing significant
Uses	*Daal,* roasted cake *Biramla*, green pod as fresh vegetable
Organolpetic quality	Fresh pod and tasty *Daal*

E. Adaptability

Response to abiotic and biotic stresses	Low water requirement, susceptible to anthracnose disease
Adaptation	All types of land of mid hill region specially dry and sunny uplands

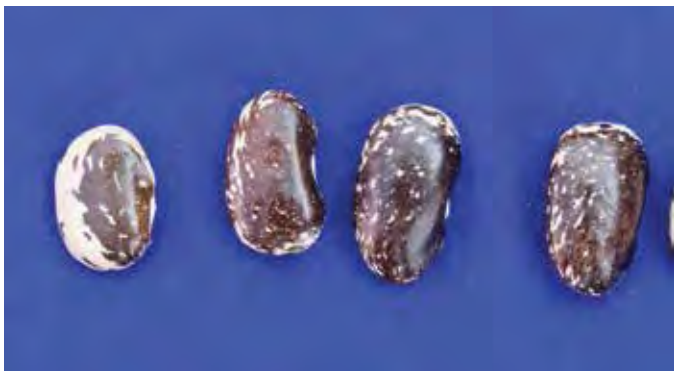
Common Bean
Thulo Chhirke Simi
(ठुलो छिर्के सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Thulo Chhirke Simi (ठुलो छिर्के सिमी)
Major locality	Chetpu, Huppa
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Brown striped, shiny big grain, red and white flower, short and bold pod

B. Agronomic traits

Plant height (cm)	260-300
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	105-110



C. Current status of the landrace

Area of cultivation (m^2/HH)	3 ± 1.23
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High protein and fiber
Market traits	Big grain size
Uses	Dry grains as curry
Organolpetic quality	Good cooking quality of grain

E. Adaptability

Response to abiotic and biotic stresses	Low water requirement, disease resistant
Adaptation	All types of land of mid hill region specially dry and sunny uplands

Buckwheat

Mithe Phapar

(मिठे फापर)

A. General Information

Crop	Buckwheat
Scientific name	*Fagopyrum esculentum* Moench.
Landrace	Mithe Phapar (मिठे फापर)
Major locality	Gairi, Chhap, Rawa, Darkha
Local name	*Phapar* (फापर)
Farmers descriptor (*Huliya*)	Triangular grain, bold triangular leaf, yellowish white flower, red pigmented stem

B. Agronomic traits

Plant height (cm)	70-90
Days to flowering	20-25
Days to maturity	50-60
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.64 ± 2.40
% of HHs cultivating the landrace	58
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron and appetite suppressant
Market traits	Gluten free and high fiber flour
Uses	*Dhindo*, *Roti*, *Fulaura*, has cultural value in Jirel community
Organolpetic quality	Low milling recovery, tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, disease resistant
Adaptation	Dry and sloppy areas of mid hills

Buckwheat
Tite Phapar
(तिते फापर)

A. General Information

Crop	Buckwheat
Scientific name	*F. tataricum* Gaertn.
Landrace	Tite Phapar **(तिते फापर)**
Major locality	Gairi, Chhap, Rawa, Yarsha
Local name	*Phapar* **(फापर)**
Farmers descriptor (*Huliya*)	Oblonged, dark gray grain, sharp triangular leaf, white-red flower

B. Agronomic traits

Plant height (cm)	120-135
Days to flowering	30-40
Days to maturity	75-80
Potential yield (kg/ropani)	90-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.82 ± 2.0
% of HHs cultivating the landrace	87
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron and appetite suppressant
Market traits	Green leafy vegetables, medicinal value
Uses	Soft shoots as fresh leafy vegetable, *Dhindo, Roti, Fulaura*
Organolpetic quality	Bitter taste of flour, high milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, disease resistant, lodging problem
Adaptation	Dry and sloppy areas of mid hills

Finger Millet
Agare Kodo
(अगरे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Agare Kodo (अगरे कोदो)
Major locality	Kaseri, Chhap
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Tall plant, medium grain, open ear, panicle

B. Agronomic traits

Plant height (cm)	95-105
Days to flowering	110-115
Days to maturity	150-160
Potential yield (kg/ropani)	45-50

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.4 ± 0.20
% of HHs cultivating the landrace	10
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron, appetite suppressant, medicinal value
Market traits	Good for liquor brewing
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Hail stone tolerant, non lodging
Adaptation	Low altitude and dry lands

Finger Millet
Chyalthe Kodo
(च्याल्थे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Chyalthe Kodo (च्याल्थे कोदो)
Major locality	Darkha, Yarsa
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Semi compact medium sized ear, light red grain

B. Agronomic traits

Plant height (cm)	85-95
Days to flowering	110-115
Days to maturity	155-160
Potential yield (kg/ropani)	85-95

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.4 ± 0.28
% of HHs cultivating the landrace	28
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Rich in iron, appetite suppressant, medicinal value
Market traits	Good market value as grain within village
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	Tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, non lodging
Adaptation	Dry and sloppy areas of mid hills

Finger Millet
Dalle Kodo
(डल्ले कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Dalle Kodo **(डल्ले कोदो)**
Major locality	Bojampu, Yarsha
Local name	*Kodo* **(कोदो)**
Farmers descriptor (*Huliya*)	Round and compact ear, short plant height, red grain

B. Agronomic traits

Plant height (cm)	85-95
Days to flowering	100-110
Days to maturity	150-160
Potential yield (kg/ropani)	75-85

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.5 ± 0.25
% of HHs cultivating the land-race	25
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron, appetite suppres-sant, medicinal value
Market traits	Good for liquor brewing
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, Liquore from grains, biomass as livestock fodder
Organolpetic quality	Good flour quality

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, less lodg-ing, blast tolerant
Adaptation	Dry and sloppy areas of mid hills

Finger Millet
Ladibadi Kodo
(लडिबडि कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Ladibadi Kodo (लडिबडि कोदो)
Major locality	Jhagade, Maula, Darkha, Rajapu
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Semi compact medium ear, brown tiny grain

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	110-115
Days to maturity	150-155
Potential yield (kg/ropani)	90-105

C. Current status of the landrace

Area of cultivation (ropani/HH)	2 ± 0.17
% of HHs cultivating the landrace	31
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Rich in iron, appetite suppressant, medicinal value
Market traits	Good for liquor brewing
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	Good milling recovery, tasty flour

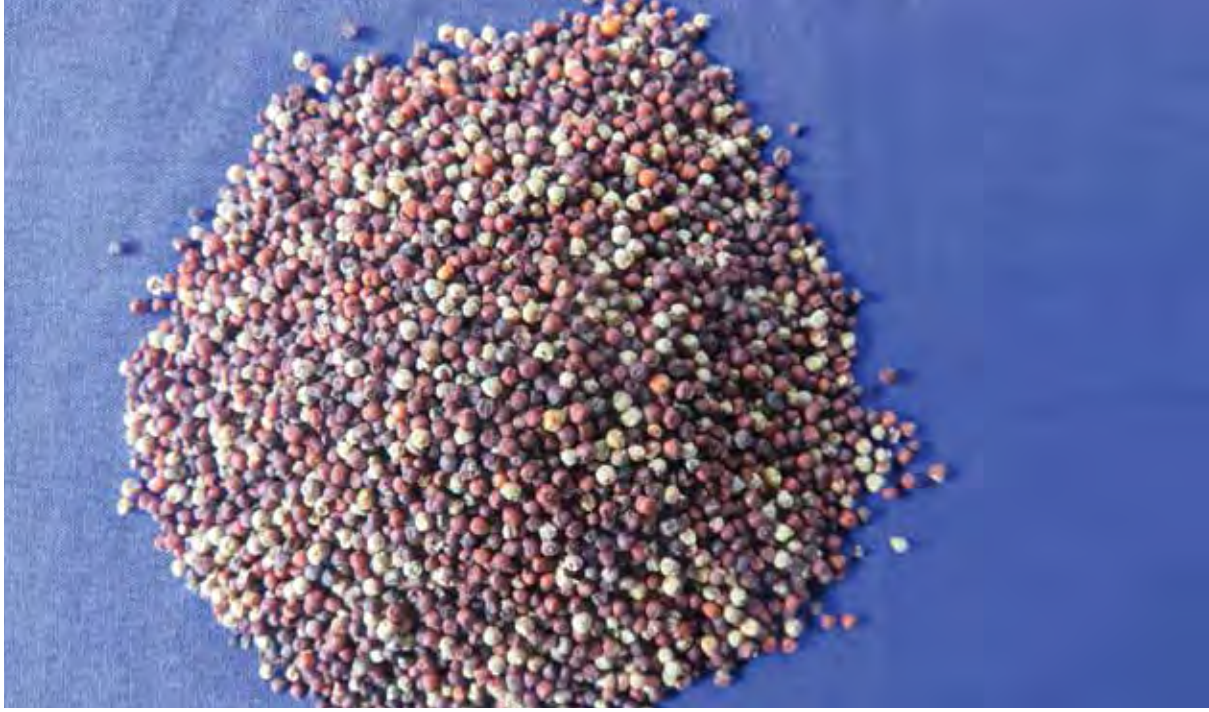
E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	All types lands in mid hills

Finger Millet

Kalo Kodo

(कालो कोदो)



A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Kalo Kodo (कालो कोदो)
Major locality	Chhap
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Semi compact medium size dark ear, dark red grain

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	110-115
Days to maturity	150-160
Potential yield (kg/ropani)	65-75

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.1 ± 0.33
% of HHs cultivating the landrace	17
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron, appetite suppressant, medicinal value
Market traits	Good for liquor brewing
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	Black color flour, tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Low altitude and dry lands

Finger Millet
Rato Kodo
(रातो कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Rato Kodo (रातो कोदो)
Major locality	Ukhubari, Chhap
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Semi compact, round and medium ear size, red grain

B. Agronomic traits

Plant height (cm)	85-95
Days to flowering	115-120
Days to maturity	160-165
Potential yield (kg/ropani)	55-65

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.1± 12
% of HHs cultivating the landrace	2
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron, appetite suppressant, medicinal value
Market traits	Good for liquor brewing
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, Liquore from grains, biomass as livestock fodder
Organolpetic quality	High milling recovery, tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Low altitude, sloppy dry lands

Finger Millet
Pahenli Kodo
(पहेंलि कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Pahenli Kodo (पहेंलि कोदो)
Major locality	Lukuwa, Chetpu, Rajapu, Bojampu
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Compact and medium ear, light yellowish brown grain, tall plant

B. Agronomic traits

Plant height (cm)	100-105
Days to flowering	110-115
Days to maturity	150-160
Potential yield (kg/ropani)	85-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.1 ± 0.27
% of HHs cultivating the land-race	15
Consevation status	Rare/Endangered
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in iron, appetite suppres-sant, medicinal value
Market traits	Good for liquor brewing
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	Good milling recovery, tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, less lodging, finger blast tolerant
Adaptation	Dry and sloppy areas of mid hills

Finger Millet

Bhotange Kodo

(भोटांगे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Bhotange Kodo (भोटांगे कोदो)
Major locality	Darkha, Rajapu, Bojampu
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Semi compact big ear, light brown grain, short plant height

B. Agronomic traits

Plant height (cm)	85-90
Days to flowering	100-105
Days to maturity	145-150
Potential yield (kg/ropani)	90-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.3 ± 0.3
% of HHs cultivating the landrace	10
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron, appetite sup-pressant, medicinal value
Market traits	Good for liquor brewing
Uses	Dhindo, *Roti,* soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	Tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, less lodging
Adaptation	Dry and sloppy areas of mid hills

Finger Millet
Nangre Kodo
(नङ्ग्रे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Nangre Kodo (नङ्ग्रे कोदो)
Major locality	Yarsa, Darkha, Lukuwa, Rajapu
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Open and big ear, light brown grain, tall plant height

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	100-105
Days to maturity	145-150
Potential yield (kg/ropani)	115-130

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.4 ± 0.30
% of HHs cultivating the landrace	8
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron, appetite suppressant
Market traits	Good for liquor brewing
Uses	*Dhindo*, *Roti*, soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	Good milling recovery of flour

E. Adaptability

Response to abiotic and biotic stresses	Less lodging, vulnerable to hail stone
Adaptation	Dry and sloppy areas of mid hills

Finger Millet

Seto/Juwai Kodo

(सेतो/ज्वाई कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Seto/Juwai Kodo (सेतो/ज्वाई कोदो)
Major locality	Jhagade, Gairi, Chhap
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Semi compact ear, white grain, short plant height

B. Agronomic traits

Plant height (cm)	75-85
Days to flowering	105-110
Days to maturity	150-155
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.2 ± 0.40
% of HHs cultivating the landrace	7
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	White flour
Uses	*Dhindo, Roti,* soup *(Khole)* from flour, liquor from grains, biomass as livestock fodder
Organolpetic quality	low milling recovery, tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Susceptible to blast and stem borrer, high lodging
Adaptation	Dry and sloppy areas of mid hills

Finger Millet
Mudke Kodo
(मुडके कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Mudke Kodo (मुडके कोदो)
Major locality	Jhagade, Gairi, Chhap
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Compact and small ear, light brown grain

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	110-115
Days to maturity	150-160
Potential yield (kg/ropani)	60-70

C. Current status of the landrace

Area of cultivation (ropani/HH)	7.5 ± 0
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron and appetite suppressant
Market traits	Good for liquor brewing, flour
Uses	*Dhindo*, *Roti,* soup (*Khole*) from flour, liquore from grains, biomass as livestock fodder
Organolpetic quality	High milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Hail stone tolerant, non lodging
Adaptation	Dry and sloppy areas of mid hills

Rice
Seto Himali
(सेतो हिमाली)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Seto Himali (सेतो हिमाली)
Major locality	Chetpu, Rajapu, Bojampu
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Bold round, white grain

B. Agronomic traits

Plant height (cm)	95-105
Days to flowering	80-85
Days to maturity	110-115
Potential yield (kg/ropani)	90-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.08 ± 0.31
% of HHs cultivating the landrace	19
Consevation status	Rare/Endangered
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Nothing significant
Uses	Rice, bitten rice, porridge, biomass as livestock fooder
Organolpetic quality	Hardy but tasty rice, high milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant, less lodging, blast resistant
Adaptation	Cold north facing slopes, high altitude areas

Rice

Rato Himali
(रातो हिमाली)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Rato Himali (रातो हिमाली)
Major locality	Chetpu, Rajapu, Bojampu
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Bold medium grain with brown stripe, dark copper red rice grain

B. Agronomic traits

Plant height (cm)	95-105
Days to flowering	80-85
Days to maturity	110-115
Potential yield (kg/ropani)	115-120

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.12 ± 0.23
% of HHs cultivating the landrace	9
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	Red rice
Uses	Rice, bitten rice, biomass as livestock fooder
Organolpetic quality	Hardy but tasty rice, high milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant, less lodging, blast resistant
Adaptation	Cold north facing slopes, high altitude areas

Rice
Jhigamali
(झिगमली)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Jhigamali (झिगमली)
Major locality	Jhagade, Biramsi
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Dark shaded bold grain, copper red rice grain

B. Agronomic traits

Plant height (cm)	130-145
Days to flowering	80-85
Days to maturity	110-120
Potential yield (kg/ropani)	130-140

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.75 ± 0.21
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Red rice
Uses	Rice, biomass as livestock fooder
Organolpetic quality	Tasty and good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant, less Lodging
Adaptation	Cold water irrigation, mid hill area

Rice
Tilpunge
(तिलपुंगे)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Tilpunge (तिलपुंगे)
Major locality	Darkha, Dadagaaun
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Bold round, golden grains, white rice

B. Agronomic traits

Plant height (cm)	130-135
Days to flowering	80-85
Days to maturity	110-115
Potential yield (kg/ropani)	115-120

C. Current status of the landrace

Area of cultivation (ropani/HH)	3.25 ± 0.63
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Goog taste
Uses	Rice, biomass as livestock fooder
Organolpetic quality	High milling recovery and tasty

E. Adaptability

Response to abiotic and biotic stresses	Water logging tolerant, less shattering
Adaptation	Swampy areas of mid hills, uplands

Rice

Gurgude Marsi

(गुरगुडे मार्सि)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Gurgude Marsi (गुरगुडे मार्सि)
Major locality	Gairi, Baguwaa
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Golden yellow round shaped grain, white bold rice

B. Agronomic traits

Plant height (cm)	165-170
Days to flowering	80-85
Days to maturity	105-110
Potential yield (kg/ropani)	160-170

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.8 ± 1.61
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Good market value as grain within village
Uses	Rice, bitten rice, porridge, *Selroti*, biomass as livestock fooder
Organolpetic quality	High milling recovery and tasty

E. Adaptability

Response to abiotic and biotic stresses	Adapted to low altitude fertile lands
Adaptation	Low altitude, Lowland fertile Bari low lands

Rice

Rambilas (रामबिलास)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Rambilas (रामबिलास)
Major locality	Gairi, Baguwaa
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Light yellow round shaped grain, medium bold white rice

B. Agronomic traits

Plant height (cm)	170-180
Days to flowering	80-85
Days to maturity	110-115
Potential yield (kg/ropani)	210-230

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.3 ± 0.69
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Good market value as grain within village
Uses	Rice, bitten rice, porridge, biomass as livestock fooder
Organolpetic quality	High milling recovery and tasty

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant
Adaptation	Low altitude, Lowland fertile Bari low lands

Rice
Mansara/Sobhara
(मनसरा/सोभरा)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Mansara/sobhara (मनसरा/सोभरा)
Major locality	Gairi, Chhap
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Dark brown slender grain, white rice, tall plant

B. Agronomic traits

Plant height (cm)	170-180
Days to flowering	80-85
Days to maturity	105-110
Potential yield (kg/ropani)	95-110

C. Current status of the landrace

Area of cultivation (ropani/HH)	2 ± 0
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Good for bitten rice
Uses	Rice, bitten rice, biomass as livestock fooder
Organolpetic quality	Tasty and good for bitten rice

E. Adaptability

Response to abiotic and biotic stresses	Tolerate high fertilizer, water logging tolerant
Adaptation	Fertile lands, low altitude *Khet* and swampy lands

Rice
Atte
(अट्टे)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Atte (अट्टे)
Major locality	Darkha, Kaseri
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Tall plant with medium sized dull yellow grain, white rice

B. Agronomic traits

Plant height (cm)	150-155
Days to flowering	80-85
Days to maturity	120-125
Potential yield (kg/ropani)	145-155

C. Current status of the landrace

Area of cultivation (ropani/HH)	4.5 ± 0
% of HHs cultivating the landrace	2
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Nothing significant
Uses	Rice, bitten rice, biomass as livestock fooder
Organolpetic quality	Good bio mass for livestock fodder, good cooking quality and taste

E. Adaptability

Response to abiotic and biotic stresses	Adapted to low altitude fertile lands, moderately susceptible to blast
Adaptation	Mid hills terraces, low lands

Rice

Paheyli Marsi

(पहेलि मार्सि)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Paheyli Marsi (पहेलि मार्सि)
Major locality	Gairi, Chhap, Ukhubaari
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Shiny yellow color grain, bold white rice

B. Agronomic traits

Plant height (cm)	135-140
Days to flowering	80-85
Days to maturity	105-110
Potential yield (kg/ropani)	95-105

C. Current status of the landrace

Area of cultivation (ropani/HH)	4± 1.62
% of HHs cultivating the landrace	10
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Tasty
Uses	Rice, bitten rice, porridge, biomass as livestock fooder
Organolpetic quality	High milling recovery, good cooking quality and tasty

E. Adaptability

Response to abiotic and biotic stresses	Adapted to low altitude fertile lands, tolerate water logging
Adaptation	Mid hills terraces, lowland

Rice
Koili
(कोइलि)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Koili (कोइलि)
Major locality	Gairi, Chhap, Ukhubaari
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Small sized smoky black grain, aromatic white rice

B. Agronomic traits

Plant height (cm)	180-185
Days to flowering	80-85
Days to maturity	120-125
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	1± 0
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Aroma
Uses	Rice, biomass as livestock fooder
Organolpetic quality	Low milling recovery, aromatic and tasty

E. Adaptability

Response to abiotic and biotic stresses	Tolerate water logging condition, less lodging
Adaptation	Mid hills terraces, lowland

Rice
Anadi
(अनदी)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Anadi **(अनदी)**
Major locality	Gairi, Chhap, Ukhubaari
Local name	*Dhan* **(धान)**
Farmers descriptor (*Huliya*)	Bold light brown grain with white rice

B. Agronomic traits

Plant height (cm)	175-180
Days to flowering	80-85
Days to maturity	120-125
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5± 0.26
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	Sticky rice, cultural value
Uses	Rice, bitten rice, porridge, *Selroti*, biomass as livestock fooder
Organolpetic quality	Stickiness, good cooking quality and tasty

E. Adaptability

Response to abiotic and biotic stresses	Water logging tolerant, less shattering
Adaptation	Low altitude swampy lands

Rice

Singare Marsi
(सिंगारे मार्सि)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Singare Marsi (सिंगारे मार्सि)
Major locality	Gairi, Ukhubaari, Chhap
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Round light striped yellow grain, white rice

B. Agronomic traits

Plant height (cm)	175-180
Days to flowering	80-85
Days to maturity	125-130
Potential yield (kg/ropani)	100-110

C. Current status of the landrace

Area of cultivation (ropani/HH)	3± 0.63
% of HHs cultivating the landrace	5
Consevation status	Endangered/Rare
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Good market value as grain within village
Uses	Rice, bitten rice, porridge, selroti, biomass as livestock fooder
Organolpetic quality	Good milling recovery and tasty

E. Adaptability

Response to abiotic and biotic stresses	Tolerate water logging, less lodging
Adaptation	Swampy areas, low altitude Lowland fertile Bari

Rice
Maldunge Marsi
(मलदुंगे मार्सि)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Maldunge Marsi (मलदुंगे मार्सि)
Major locality	Gairi, Ukhubaari, Chhap
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Yellow shiny bold grain, white rice

B. Agronomic traits

Plant height (cm)	170-175
Days to flowering	80-85
Days to maturity	105-110
Potential yield (kg/ropani)	130-140

C. Current status of the landrace

Area of cultivation (ropani/HH)	4± 0.31
% of HHs cultivating the landrace	15
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Tasty
Uses	Rice, bitten rice, porridge, biomass as livestock fooder
Organolpetic quality	Good biomass for livestock fodder, good millng recovery and tasty

E. Adaptability

Response to abiotic and biotic stresses	Tolerate water logging and tolerate high fertilizer
Adaptation	Swampy areas, low altitude Lowland fertile Bari

4.2.1 Overview of Ghanpokhara, Lamjung

Ghanpokhara (former Ghanpokhara VDC) lies in ward no 1 and 2 of Marsyangdi rural municipality, Lamjung covering an area of 56.4 Km^2. Out of total land area, only 20% is covered by the human settlement and agricultural land rest is forest and rangeland.

Agriculture is the primary source of livelihood followed by remittance. As per the domain where crops are grown, categorically two kinds of cropping patterns are found predominant; upland *Bari* and lowland *Khet*. Upland bari being the dominant can further be disaggregated into rainfed (*Pakho Bari*) where crops like rice, maize and finger millet are gown while soybeans are grown in bunds; and *Bari* land where finger millet is cultivated in the relay with maize in summer and potato in winter. While in *Khet* land rice is cultivated in the main season and most of the part being fallow during the winter season (Annex 3). Very few farmers grow wheat, foxtail millet, barley/naked barley and mustard in *Khet*. The average food sufficiency of staple crops is for six months and vegetables for only for 5 months.

Map of project site Ghanpokhara and Marsyagdi Rural Municipality, Lamjung

Geography	28˚16'-28˚24' N to 84˚16'-84˚24' E, 900-4100 masl cultivation range (800-2100masl), Mid hill
Climate	Sub tropical to alpine, temperature range-15 to 27 C, 152.2 mm per year
Demography	Total HH: 578 Average family size: 6
Average farm size (ropani/HHs)	9.1 ± 1.1 (0.45 ha/HH)
Ethnicity	Gurung (67%), followed by Dalit (24%), Tamang (5%) and Chhetri (4%)
Varietal Richness of Mandate Crops	Amaranths- 3, Naked Barley-1, Beans-5 Finger Millet-8, Foxtail Millet-3, Rice-6

Source: Ghanpokhara VDC Profile (2009) and Gurung et al. (2016)

Only six out of eight mandate crops have historically been cultivated in Ghanpokhara. Proso millet and buckwheat were not common even in the past. Crops such as foxtail millet, barley, naked barley, and amaranth are grown by less than 10 % of households, which highlights the need for promoting and conserving these crops. Most of these are local varieties as very few registered varieties exist for mandate crops and cold tolerant rice in Nepal.

Amaranth
Rato Latte
(रातो लट्टे)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus hypochondriacus*
Landrace	Rato Latte (रातो लट्टे)
Major locality	Bhache
Local name	Latte (लट्टे)
Farmers descriptor (*Huliya*)	Erect red inflorescence, white shine tiny grain

B. Agronomic traits

Plant height (cm)	215-225
Days to flowering	75-85
Days to maturity	125-130
Potential yield (kg/ropani)	20-25

C. Current status of the landrace

Area of cultivation (m^2/HH)	3 ± 0.5
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Religious and cultural value
Uses	Snacks (roasted and mixed with honey)
Organolpetic quality	Soft puffy grain on roasting

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Slightly sloppy, slash and burnt land

Amaranth

Kalo Latte

(कालो लट्टे)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus dubius*
Landrace	Kalo Latte (कालो लट्टे)
Major locality	Bhache
Local name	Latte (लट्टे)
Farmers descriptor (*Huliya*)	Erect grain inflorescence, whole plant green colour, shiny black tiny grain

B. Agronomic traits

Plant height (cm)	110-140
Days to flowering	90-100
Days to maturity	130-140
Potential yield (kg/ropani)	10-15

C. Current status of the landrace

Area of cultivation (m^2/HH)	3 ± 0.5
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron
Market traits	Iron rich green leafy vegetable in lean period
Uses	Green leafy vegetable
Organolpetic quality	Smooth texture, tasty

E. Adaptability

Response to abiotic and biotic stresses	Damping off problem in water logged condition
Adaptation	Sloppy, marginal land, homegarden

Amaranth
Seto Latte
(सेतो लट्टे)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus hypochondriacus*
Landrace	Seto Latte (सेतो लट्टे)
Major locality	Ghimrang, Bhache
Local name	*Latte* (लट्टे)
Farmers descriptor (*Huliya*)	Erect pink coloured inflorescence, white tiny grain, sparse inflorescence, reddish green leaf

B. Agronomic traits

Plant height (cm)	210-220
Days to flowering	80-85
Days to maturity	120-130
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (m^2/HH)	3 ± 0.15
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Religious and cultural value
Uses	Snacks (roasted and mixed with honey)
Organolpetic quality	Soft puffy grain on roasting

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant
Adaptation	Slightly sloppy, slash and burnt land

Naked Barley
Local
(स्थानीय)

A. General Information

Crop	Naked Barley
Scientific name	*Hordeum vulgare* L. *var. nudum* Hook. F.
Landrace	Local **(स्थानीय)**
Major locality	Marja, Bhache
Local name	*Karu* **(करू)**
Farmers descriptor (*Huliya*)	White and elongated grain; six row panicle, long awn

B. Agronomic traits

Plant height (cm)	80-86
Days to flowering	80-90
Days to maturity	130-135
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5 ± 0.15
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Nutritious flour (*Satu*)
Uses	Roasted grain as snacks, flour as *Satu*, straw as fodder for livestock, grain for liquor preparation
Organolpetic quality	Tasty and soft to eat

E. Adaptability

Response to abiotic and biotic stresses	Cold-tolerant, lodging problem, less disease incidence (powdery mildew)
Adaptation	Dry and marginal *Bari*

Bean
Dalle Hiude
(डल्ले हिउँदे)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Dalle Hiude Simi (डल्ले हिउँदे सिमी)
Major locality	Roplephant
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Round grain, brown patches on creamy grain, straight pod with smooth surface, indeterminate plant

B. Agronomic traits

Plant height (cm)	230-300
Days to flowering	50-65
Days to maturity	105-110
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (m^2/HH)	10 ± 1.64
% of HHs cultivating the landrace	10
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Tasty, smooth surfaced green pod
Uses	Green pod as vegetable, grain as *Daal*
Organolpetic quality	Good taste, soft texture

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant (Anthracnose)
Adaptation	Homegarden, all types of land of mid-hill region

Bean

Ghiu Simi
(घिउ सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Ghiu Simi (घिउ सिमी)
Major locality	Mourni (मोर्डी)
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Dark red, big grain, pink flower, indeterminate plant

B. Agronomic traits

Plant height (cm)	350-400
Days to flowering	55-60
Days to maturity	110-115
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (m^2/HH)	8 ± 1.64
% of HHs cultivating the landrace	20
Consevation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Red grain
Uses	Green pod as vegetable, grain as *Daal*
Organolpetic quality	Sweet taste, soft texture

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant (Anthracnose)
Adaptation	Homegarden, all types of land of mid-hill region

Bean

Kalo Hiude Simi

(कालो हिउँदे सिमी)

A. General Information

Crop	Lablab Bean
Scientific name	*Dolichos lablab*
Landrace	Kalo Hiude Simi (कालो हिउँदे सिमी)
Major locality	Roplephant
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Black grain with white stripe in middle, slightly red, flat pod with red and purple edge

B. Agronomic traits

Plant height (cm)	230-300
Days to flowering	50-65
Days to maturity	105-110
Potential yield (kg/ropani)	90-100

C. Current status of the landrace

Area of cultivation (m^2/HH)	10 ± 1.64
% of HHs cultivating the landrace	10
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Source of protein and vitamin
Market traits	Tasty fresh pod
Uses	Green pod as vegetable in winter season
Organolpetic quality	Tasty, less sweetness

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant
Adaptation	Homegarden, all types of land of mid-hill region

Bean

Kalo Manage Simi

(काले मनाङ्गे सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Manage Simi (काले मनाङ्गे सिमी)
Major locality	Bhache, Tau
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Black oval grain

B. Agronomic traits

Plant height (cm)	250-300
Days to flowering	55-60
Days to maturity	105-110
Potential yield (kg/ropani)	40-50

C. Current status of the landrace

Area of cultivation (m^2/HH)	8 ± 0.2
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Shiny black, big grain
Uses	Grain as *Daal*
Organolpetic quality	Good in taste, smooth texture

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant
Adaptation	Homegarden, all types of land of mid-hill region

Bean

Seto Hiude Simi

(सेतो हिउँदे सिमी)

A. General Information

Crop	Lablab Bean
Scientific name	*Dolichos lablab*
Landrace	Seto Hiude Simi **(सेतो हिउँदे सिमी)**
Major locality	Roplephant
Local name	*Simi* **(सिमी)**
Farmers descriptor (*Huliya*)	Dark green colour pod, indeterminate plant, slightly curved pod with smooth surface, black grain with white stripe

B. Agronomic traits

Plant height (cm)	230-300
Days to flowering	50-65
Days to maturity	105-110
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (m^2/HH)	3 ± 1.23
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein and vitamin
Market traits	Tasty fresh pod
Uses	Green pods as vegetable
Organolpetic quality	Good in taste

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant
Adaptation	Homegarden, all types of land of mid-hill region

Finger Millet
Dalle Kodo
(डल्ले कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Dalle Kodo (डल्ले कोदो)
Major locality	Bhache, Ghimrang
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Round and compact ear, light brown grain

B. Agronomic traits

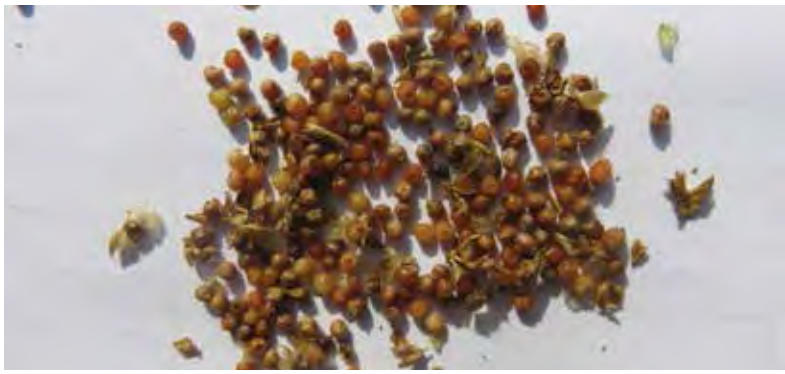
Plant height (cm)	100-110
Days to flowering	120-130
Days to maturity	170-180
Potential yield (kg/ropani)	85-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.8 ± 0.32
% of HHs cultivating the landrace	25
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	Calcium rich flour, good for diabetic person, liquor preparation
Uses	Liquor (*Raksi*) from grain, *Dhindo, Khole, Roti* from flour, biomass as fodder for livestock
Organolpetic quality	Good taste



E. Adaptability

Response to abiotic and biotic stresses	Hailstone tolerant, drought tolerant
Adaptation	Non irrigated, dry upland *Bari*

Finger Millet
Larfare Kodo
(लरफरे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Larfare Kodo (लरफरे कोदो)
Major locality	Pache
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Red, medium and elongated grain, open ear with long finger

B. Agronomic traits

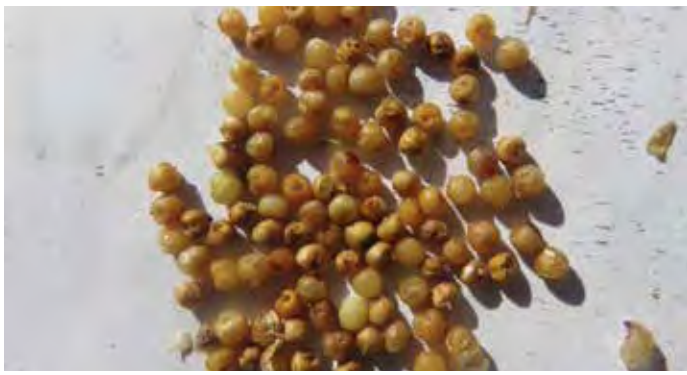
Plant height (cm)	90-95
Days to flowering	120-130
Days to maturity	160-165
Potential yield (kg/ropani)	70-80

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.64 ± 0.48
% of HHs cultivating the landrace	23
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	Calcium rich flour, good for diabetic person, liquor preparation
Uses	Liquor (*Raksi*) from grain, *Dhindo, Khole, Roti* from flour, biomass as fodder for livestock
Organolpetic quality	Good taste



E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant (Cercospora)
Adaptation	Non irrigated, dry upland *Bari*

Finger Millet
Sangle Kodo
(साङ्ले कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Sangle Kodo (साङ्ले कोदो)
Major locality	Probhi, Ghopte
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Open ear, red small/tiny round grain

B. Agronomic traits

Plant height (cm)	100-110
Days to flowering	125-135
Days to maturity	170-180
Potential yield (kg/ropani)	70-80

C. Current status of the landrace

Area of cultivation (ropani/HH)	3.71 ± 0.77
% of HHs cultivating the landrace	15
Consevation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	Calcium rich flour, good for diabetic person, liquor preparation
Uses	*Raksi* from grain, *Dhindo, Khole, Roti* from flour, biomass as fodder for livestock
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant
Adaptation	Non irrigated, dry upland *Bari*

Finger Millet
Seto Kodo
(सेतो कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Seto Kodo **(सेतो कोदो)**
Major locality	Probhi
Local name	Kodo **(कोदो)**
Farmers descriptor (*Huliya*)	Semi compact round ear, white round and small grain

B. Agronomic traits

Plant height (cm)	90-95
Days to flowering	130-135
Days to maturity	190-195
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.25 ± 0.25
% of HHs cultivating the landrace	8
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	White flour, calcium rich flour, good for diabetic person
Uses	R*aksi* from grain, *Dhindo, Khole, Roti* from flour, biomass as fodder for livestock
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, cercospora susceptible
Adaptation	Non irrigated, dry upland *Bari*

Finger Millet
Barkhe Kodo
(बर्खे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Barkhe Kodo (बर्खे कोदो)
Major locality	Roplephant
Local name	Kodo (कोदो)
Farmers descriptor (*Huliya*)	Reddish white, round grain, compact ear

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	125-130
Days to maturity	180-190
Potential yield (kg/ropani)	110-120

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.78 ± 0.61
% of HHs cultivating the landrace	6
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	Calcium rich flour, good for diabetic person, liquor preparation
Uses	R*aksi* from grain, *Dhindo, Khole, Roti* from flour, biomass as fodder for livestock
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant
Adaptation	Non irrigated, dry upland *Bari,* can be directly seeded

Finger Millet
Nangre Kodo
(नङ्ग्रे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Nangre Kodo (नङ्ग्रे कोदो)
Major locality	Bhache
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Red, round grain, open and droopy ear

B. Agronomic traits

Plant height (cm)	110-120
Days to flowering	125-130
Days to maturity	160-170
Potential yield (kg/ropani)	60-70

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.25 ± 1.48
% of HHs cultivating the landrace	4
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	Calcium rich flour, good for diabetic person, liquor preparation
Uses	*Raksi* from grain, *Dhindo, Khole, Roti* from flour, biomass as fodder for livestock
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, disease tolerant (Cercospora)
Adaptation	Non irrigated, dry upland *Bari*, relay cropping with maize

Finger Millet

Chhangre Kodo
(छाङ्ग्रे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Chhangre Kodo (छाङ्ग्रे कोदो)
Major locality	Kafal Danda, Bhadaure
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Light red medium round grain, erect and open ear

B. Agronomic traits

Plant height (cm)	125-130
Days to flowering	130-135
Days to maturity	150-155
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	1 ± 0.00
% of HHs cultivating the landrace	5
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	Calcium rich flour, good for diabetic person, liquor preparation
Uses	R*aksi* from grain, *Dhindo, Khole, Roti* from flour, biomass as fodder for livestock
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Resistant to cercospora leaf spot and stem borer
Adaptation	Non irrigated, dry upland *Bari*

Finger Millet
Lamsare Kodo
(लमसरे कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Lamsare Kodo (लमसरे कोदो)
Major locality	Pache
Local name	*Kodo* (कोदो)
Farmers descriptor (*Huliya*)	Tiny black grain, open ear

B. Agronomic traits

Plant height (cm)	120-125
Days to flowering	120-130
Days to maturity	180-185
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	2 ± 0.00
% of HHs cultivating the landrace	10
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	High calcium content, appetite suppressant, heat generating food
Market traits	Calcium rich flour, good for diabetic person, liquor preparation
Uses	R*aksi* from grain, *Dhindo, Khole, Roti* from flour, bio-mass as fodder for livestock
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant
Adaptation	Non irrigated, dry upland *Bari*, relay cropping with maize

Foxtail Millet

Bariyo Kaguno

(बरियो कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Bariyo Kaguno (बरियो कागुनो)
Major locality	Nhese
Local name	*Kaguno* (कागुनो)
Farmers descriptor (*Huliya*)	White tiny grain, slender panicle, tender stem

B. Agronomic traits

Plant height (cm)	185-195
Days to flowering	105-110
Days to maturity	120-125
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.33 ± 0.15
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Easy to digest, good for diabetic patient, low glycemic index
Market traits	Good for diabetic patient, low glycemic index
Uses	Pudding, *Bhat* from grain, *Dhindo* from flour
Organolpetic quality	Tasty pudding, soft texture

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Non irrigated, dry lowland *Bari*, less damaged by moneky

Foxtail Millet
Tinmase Kaguno
(तिनमासे कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Tinmase Kaguno (तिनमासे कागुनो)
Major locality	Sene
Local name	*Kaguno* (कागुनो)
Farmers descriptor (*Huliya*)	White and creamy elongated grain, tender stem

B. Agronomic traits

Plant height (cm)	165-170
Days to flowering	105-110
Days to maturity	130-135
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.5 ± 0.29
% of HHs cultivating the landrace	10
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Easy to digest, good for diabetic patient
Market traits	Good for diabetic patient, low glycemic index
Uses	Pudding, *Bhat* from grain, *Dhindo* from flour
Organolpetic quality	Tasty pudding, soft texture

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Non irrigated, dry lowland *Bari*, less damaged by moneky

Foxtail Millet
Rato Kaguno
(रातो कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Rato Kaguno (रातो कागुनो)
Major locality	Bhache
Local name	*Kaguno* (कागुनो)
Farmers descriptor (*Huliya*)	Red grain, white rice, tender stem

B. Agronomic traits

Plant height (cm)	135-145
Days to flowering	90-100
Days to maturity	115-120
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.33 ± 0.24
% of HHs cultivating the landrace	10
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Easy to digest, good for diabetic patient
Market traits	Good for diabetic patient, low glycemic index
Uses	Pudding, *Bhat* from grain, *Dhindo* from flour
Organolpetic quality	Tasty pudding, soft texture

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Non irrigated, dry lowland *Bari*, less damaged by moneky

Rice
Seto
(सेतो)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Seto (सेतो)
Major locality	Bhache, Ghimrang
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	White panicle, medium size grain, white rice

B. Agronomic traits

Plant height (cm)	145-150
Days to flowering	125-130
Days to maturity	155-160
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	2 ± 0.51
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Source of carbohydrate, appetite suppressant
Market traits	Tasty, soft texture rice
Uses	*Bhat, Selroti*
Organolpetic quality	Soft rice

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant
Adaptation	Upland *Khet*

Rice

Darmali

(दरमाली)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Darmali (दरमाली)
Major locality	Bhadaure
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Brownish grain, medium grain, white rice

B. Agronomic traits

Plant height (cm)	130-135
Days to flowering	130-135
Days to maturity	145-150
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	3 ± 0.51
% of HHs cultivating the landrace	33
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Source of carbohydrate, appetite suppressant
Market traits	NS
Uses	*Bhat, Selroti*
Organolpetic quality	Hard texture rice

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant, less disease (leaf blast)
Adaptation	Upland irrigated *Khet*

Rice
Kattike
(कात्तिके)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Kattike (कात्तिके)
Major locality	Bhache
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	White grain, rice

B. Agronomic traits

Plant height (cm)	135-140
Days to flowering	125-130
Days to maturity	155-160
Potential yield (kg/ropani)	85-95

C. Current status of the landrace

Area of cultivation (ropani/HH)	3.15 ± 0.63
% of HHs cultivating the landrace	28
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Source of carbohydrate, appetite suppressant
Market traits	NS
Uses	*Bhat, Selroti*
Organolpetic quality	Hard texture rice

E. Adaptability

Response to abiotic and biotic stresses	Cold and drought tolerant
Adaptation	Upland *Khet*

Rice

Kalo

(काले)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Kalo (काले)
Major locality	Bhache
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Black panicle, black outer cover, white rice, awned grain

B. Agronomic traits

Plant height (cm)	130-140
Days to flowering	125-130
Days to maturity	155-160
Potential yield (kg/ropani)	80-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.9 ± 0.65
% of HHs cultivating the landrace	20
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Source of carbohydrate, appetite suppressant
Market traits	NS
Uses	*Bhat, Selroti*
Organolpetic quality	Soft texture rice, tasty

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant, leaf blast susceptible, pest (leaf roller)
Adaptation	Upland *Khet*

Rice

Lekali Basmati
(लेकाली बासमती)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Lekali Basmati (लेकाली बासमती)
Major locality	Bhache
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Medium, brown grain, mild brown rice

B. Agronomic traits

Plant height (cm)	145-150
Days to flowering	130-135
Days to maturity	165-170
Potential yield (kg/ropani)	55-65

C. Current status of the landrace

Area of cultivation (ropani/HH)	4 ± 0.51
% of HHs cultivating the landrace	13
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Source of carbohydrate, appetite suppressant
Market traits	Mild aroma
Uses	*Bhat, Selroti*
Organolpetic quality	Aroma, soft textured rice

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant
Adaptation	Upland *Khet*

Rice

Khairo (खैरो)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Khairo (खैरो)
Major locality	Ghimrang, Bhache
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Round brown and dark shaded bold grain, white rice

B. Agronomic traits

Plant height (cm)	140-145
Days to flowering	130-135
Days to maturity	165-170
Potential yield (kg/ropani)	95-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	4 ± 0.00
% of HHs cultivating the landrace	2
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Source of carbohydrate, appetite suppressant
Market traits	NS
Uses	*Bhat, Selroti*
Organolpetic quality	Hard rice

E. Adaptability

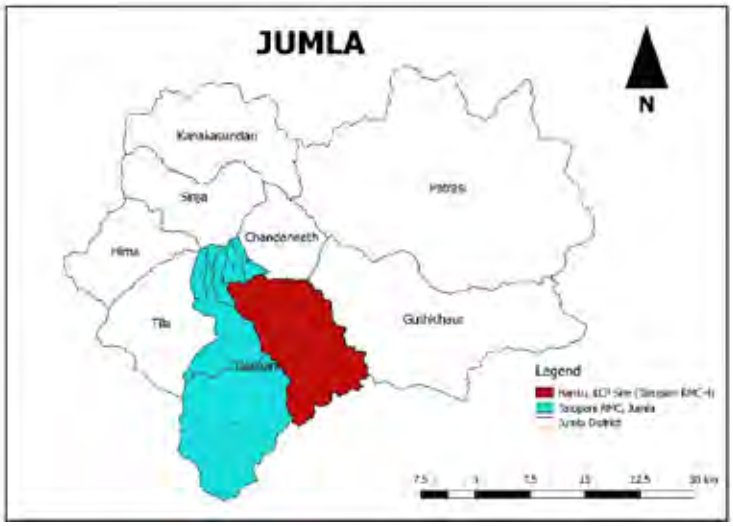
Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Upland *Khet*

4.3.1 Overview of Hanku, Jumla

Hanku (former Hanku VDC), lies in ward no 4 of Tatopani rural municipality and is located about 8 Km from the district headquarter, Chandannath municipality. The total area of Hanku is 199.47 Km^2.

Agriculture is the most important source of livelihood with a farming system consisting of integration of agronomical crops, horticultural crops (e.g. apple, walnut, peach, vegetables and potato) and livestock (cattle, goat, sheep and poultry).

There are two distinct seasons; rainy season starts from April-June and ends during September-October and winter season's crops are sown in November and harvested in late May to early June. The cropping calendar with time for sowing, intercultural operation and harvest of mandate crops is presented in Annex 2.



Map of Jumla showing project site Hanku and Tatopani Rural Municipality

Geography	29˚04' to 29˚15' N and 82˚05' to 82˚16' E, Altitude: 2000 to 4600 masl.
Climate	Temp. range: 12-30 °C, minimum can reach upto -11 °C, Rainfall: 667 mm and 852 mm Cool temperate to alpine climate
Demography	Total HHs 580 Total population: 6203 (Male-56%, Female-44%)
Farm size (ropani/HHs)	7.13 ± 0.43 (0.335 ha/HH)
Ethnicity	Dalit (41%), Brahmin (36%) and Chettri/ Thakuri (23%)
Varietal Richness of Mandate Crops	Amaranths- 3, Barley-1, Beans-12, Buckwheat-2, Finger Millet-2, Foxtail Millet-3, Porso Millet-2, Rice-5

Source: VDC Profile and Palikhe et al. (2016)

Widely cultivated crops in the summer season are rice, millets and beans while barley is the major winter crop. While crops like proso millet, foxtail millet, buckwheat, potato, amaranth, soybean, black gram and horse gram are minor crops. Cereals and legumes are sufficient only for six months on an average, even more, the aggravating situation is in vegetables with average sufficiency for just for 3 months. This clearly indicated that there are high food and nutrition insecurity in farming communities of Hanku. With the increase in road access, offseason vegetable cultivation is also being adopted by very few farmers.

All eight mandate crops are grown in Hanku. Among the mandate crops, rice is cultivated in the highest average area of 2.57 ropani per HH followed by barley, beans and finger millet whereas, amaranth is cultivated under least average area per HH. Among the commonly grown crops in Hanku, rice is reported to have the highest productivity followed by barley and finger millet with 187.01 kg/ropani, 101.87 kg/ropani and 90.18 kg/ropani respectively (Palikhe et al., 2016).

Amaranth
Seto Marshe
(सेतो मार्से)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus hypochondriacus*
Landrace	Seto Marshe (सेतो मार्से)
Major locality	Gidikhola, Hanku, Gautambada
Local name	*Marshe* (मार्से)
Farmers descriptor (*Huliya*)	Erect white inflorescence, white grain

B. Agronomic traits

Plant height (cm)	100-150
Days to flowering	115-125
Days to maturity	160-170
Potential yield (kg/ropani)	225-235

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.027 ± 0.007
% of HHs cultivating the landrace	12
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, rich in iron
Market traits	Religious value
Uses	Roasted grain, *Laddu*
Organolpetic quality	Smooth texture

E. Adaptability

Response to abiotic and biotic stresses	Disease tolerant, drought tolerant
Adaptation	Dry upland *Bari* and marginal land

Amaranth
Lal/Rato Marshe
(लाल/रातो मार्से)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus hypochondriacus*
Landrace	Lal/Rato Marshe (लाल/रातो मार्से)
Major locality	Niya pani, Gidikhola, Hanku, Gautambada
Local name	*Marshe* (मार्से)
Farmers descriptor (*Huliya*)	Erect red inflorescence, white grain

B. Agronomic traits

Plant height (cm)	250-300
Days to flowering	115-125
Days to maturity	165-170
Potential yield (kg/ropani)	200-500

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.020 ± 0.003
% of HHs cultivating the landrace	5
Consevation status	Vulnerable
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Nutritious, rich in iron
Market traits	Leafy green, grain
Uses	*Laddu, Roti,* fresh leafy vegetable
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Dry upland *Bari* and marginal lands

Amaranth
Ladi Marshe
(लडी मार्से)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus caudatus* L.
Landrace	Ladi Marshe (लडी मार्से)
Major locality	Gidikhola, Hanku, Gautambada
Local name	*Marshe* (मार्से)
Farmer descriptor (*Huliya*)	Drooping inflorescence, light red grains

B. Agronomic traits

Plant height (cm)	245-250
Days to flowering	125-135
Days to maturity	175-180
Potential yield (kg/ropani)	100-150

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.033 ± 0.000
% of HHs cultivating the landrace	2
Conservation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in iron
Market traits	Religious value
Uses	*Laddu*, toasted snacks
Organolpetic quality	Good taste, puffy

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Dry and sloppy lands, *Bari*

Barley

Chawali Jau (चावली जौ)

A. General Information

Crop	Barley-Hulled
Scientific name	*Hordeum vulgare* L.
Landrace	Chawali Jau (चावली जौ)
Major locality	Hanku, Partheni, Gidikhola, Gautambada, Niyapani
Local name	*Jau* (जौ)
Farmer descriptor (*Huliya*)	Round white grains, awned panicle and medium plant height

B. Agronomic traits

Plant height (cm)	70-75
Days to flowering	125-135
Days to maturity	170-180
Potential yield (kg/ropani)	100-105

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.20 ± 0.15
% of HHs cultivating the landrace	81
Consevation status	Common
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Rich in dietary fibre, appetite suppressant
Market traits	Nutritious flour, cultural use
Uses	*Roti, Saatu*
Organolpetic quality	Tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, less lodging
Adaptation	Dry lands, *Khet* and *Bari*

Bean

Rato Lamo Simi

(रातो लामो सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Rato Lamo Simi (रातो लामो सिमी)
Major locality	Hanku, Partheni, Gidikhola, Gautambada, Niyapani
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Red flower, elongated red grain, indeterminate prostate growing habit

B. Agronomic traits

Plant height (cm)	35-45
Days to flowering	55-65
Days to maturity	95-105
Potential yield (kg/ropani)	52.75 ± 4.36

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.12 ± 0.09
% of HHs cultivating the landrace	72
Consevation status	Rare/Endangered
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Red colour and large grains
Uses	*Daal*, pods as fresh vegetable
Organolpetic quality	Good cooking quality and tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant but susceptible to water logging
Adaptation	Sloppy uplands and *Bari*

Bean

Kalo Lamo Simi

(कालो लामो सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Lamo Simi (कालो लामो सिमी)
Major locality	Hanku, Partheni, Gidikhola, Gautambada, Niyapani
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Long black grain, small bushy plant and purple inflorescence

B. Agronomic traits

Plant height (cm)	55-65
Days to flowering	55-65
Days to maturity	90-100
Potential yield (kg/ropani)	50-55

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.96 ± 0.11
% of HHs cultivating the landrace	37
Consevation status	Rare/Endangered
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Shiny black colour, kidney shaped grains
Uses	*Daal*, green pods as fresh vegetable
Organolpetic quality	Tasty and good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy uplands and *Bari*

Bean

Rato Kirbire/Maale Simi
(रातो किरबिरे/माले सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Rato Kirbire/Maale Simi (रातो किरबिरे/माले सिमी)
Major locality	Hanku, Partheni, Gidikhola, Gautambada, Niyapani
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Red grain with white spots, elongated grains

B. Agronomic traits

Plant height (cm)	25-35
Days to flowering	60-70
Days to maturity	95-105
Potential yield (kg/ropani)	100-110

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.43 ± 0.04
% of HHs cultivating the landrace	3
Consevation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Red grain color and taste
Uses	*Daal,* Curry
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Anthracnose tolerant, drought tolerant
Adaptation	Sloppy and upland *Bari*

Bean

Kalo Kirbire/Maale Simi

(कालो किरबिरे/माले सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Kirbire/Maale Simi (कालो किरबिरे/माले सिमी)
Major locality	Hanku, Partheni, Gidikhola, Gautambada, Niyapani
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Elongated black grain with white patches, indeterminate climbing

B. Agronomic traits

Plant height (cm)	70-80
Days to flowering	55-65
Days to maturity	95-105
Potential yield (kg/ropani)	50-55

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.10 ± 0.60
% of HHs cultivating the landrace	2
Consevation status	Common
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protien and iron
Market traits	Black grain color
Uses	*Daal*, Curry
Organolpetic quality	Good cooking quality and taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy and upland *Bari*

Bean

Kaleji Simi
(कलेजि सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kaleji Simi (कलेजि सिमी)
Major locality	Hanku
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Elongated, reddish brown grains, purple inflorescence

B. Agronomic traits

Plant height (cm)	70-75
Days to flowering	55-60
Days to maturity	90-100
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	1 ± 0.01
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Small grain and red color
Uses	*Daal*, Curry
Organolpetic quality	Average taste

E. Adaptability

Response to abiotic and biotic stresses	Drought and disease tolerant
Adaptation	Sloppy and upland *Bari*

Bean

Kalo Masino/Sano Simi

(कालो मसिनो/सानो सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Masino/Sano (कालो मसिनो/सानो)
Major locality	Gautamnbada
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Purple inflorescence and shinny small black grains

B. Agronomic traits

Plant height (cm)	55-65
Days to flowering	55-65
Days to maturity	95-105
Potential yield (kg/ropani)	45-50

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.1 ± 0.01
% of HHs cultivating the landrace	8
Consevation status	Rare/Endangered
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protien and iron
Market traits	Black grain
Uses	*Daal,* Curry, green pod as vegetable
Organolpetic quality	Tasty and smooth texture

E. Adaptability

Response to abiotic and biotic stresses	Susceptible to anthracnose, drought tolerant
Adaptation	Sloppy and upland *Bari*

Bean

Khairo Simi

(खैरो सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Khairo Simi (खैरो सिमी)
Major locality	Niyapani, Gidikhola
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Dark red pigments in pods, purple inflores-cence and gray grain color

B. Agronomic traits

Plant height (cm)	55-65
Days to flowering	60-70
Days to maturity	95-105
Potential yield (kg/ropani)	45-50

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.1 ± 0.01
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Brownish grain
Uses	*Daal,* fresh pod as vegetable
Organolpetic quality	Good cooking quality and tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought and disease tolerant
Adaptation	Sloppy and upland *Bari*

Bean

Pahenlo Besare Simi

(पहेंलो बेसारे सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Pahenlo Besare Simi (पहेंलो बेसारे सिमी)
Major locality	Niyapani
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Elongated yellow long grain, bushy type plant

B. Agronomic traits

Plant height (cm)	60-70
Days to flowering	35-45
Days to maturity	70-80
Potential yield (kg/ropani)	50-55

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5 ± 0.01
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Attractive grain color and good taste
Uses	*Daal*, fresh pod as vegetable
Organolpetic quality	Smooth texture, tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy dry lands and *Bari*

Bean

Seto Kirbire Simi

(सेतो किरबिरे सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Seto Kirbire Simi (सेतो किरबिरे सिमी)
Major locality	Hanku
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Black pigments in pods, creamy white grains with black patches

B. Agronomic traits

Plant height (cm)	55-65
Days to flowering	55-65
Days to maturity	95-105
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5 ± 0.01
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Attractive grain color and good taste
Uses	*Daal,* Curry
Organolpetic quality	Good cooking quality and tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy dry lands and *Bari*

Bean

Khairo Chirkey Simi

(खैरो छिर्के सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Khairo Chirkey Simi (खैरो छिर्के सिमी)
Major locality	Hanku
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Brown grain with grey and white patches

B. Agronomic traits

Plant height (cm)	45-55
Days to flowering	55-65
Days to maturity	95-105
Potential yield (kg/ropani)	45-50

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5 ± 0.01
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Dual purpose and tasty
Uses	*Daal* and fresh pod as vegetable
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy dry lands and *Bari*

Bean

Rato Sano Chirkey Simi

(रातो सानो छिर्के सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Rato Sano Chirkey Simi (रातो सानो छिर्के सिमी)
Major locality	Hanku
Local name	*Simi* (सिमी)
Farmers descriptor (*Huliya*)	Small round pink grains with tiny white patches

B. Agronomic traits

Plant height (cm)	40-50
Days to flowering	55-65
Days to maturity	95-105
Potential yield (kg/ropani)	45-50

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5 ± 0.01
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protien
Market traits	Attractive grain color
Uses	*Daal,* fresh pod as vegetable
Organolpetic quality	Good cooking quality, tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy dry lands and *Bari*

Bean

Rato Sano Simi

(रातो सानो सिमी)

A. General Information

Crop	Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Rato Sano Simi (रातो सानो सिमी)
Major locality	Hanku, Partheni, Gidikhola, Gautambada, Niyapani
Local name	*Simi* (सिमी)
FFarmers descriptor (*Huliya*)	Bushy type plant, shiny blood red grains

B. Agronomic traits

Plant height (cm)	60-70
Days to flowering	70-80
Days to maturity	95-105
Potential yield (kg/ropani)	55-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	2 ± 0.6
% of HHs cultivating the landrace	65
Consevation status	Common
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Rich in protein, nutritious
Market traits	Attractive color, good taste
Uses	*Daal,* fresh pod as vegetable
Organolpetic quality	Good cooking quality, tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy dry lands and *Bari*

Buckwheat
Mithe Fapar
(मिठे फापर)

A. General Information

Crop	Buckwheat-sweet
Scientific name	*Fagopyrum esculentum* Moench.
Landrace	Mithe Phapar (मिठे फापर)
Major locality	Hanku, Gidikhola, Niyapani
Local name	*Mithe Phapar* (मिठे फापर)
Farmers descriptor (*Huliya*)	Triangular pointed black grains, white inflorescence, red stem color

B. Agronomic traits

Plant height (cm)	40-50
Days to flowering	45-55
Days to maturity	85-95
Potential yield (kg/ropani)	50-55

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.48 ± 0.12
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in fibre, appetite suppressant
Market traits	Medicinal use, tasty
Uses	*Roti*
Organolpetic quality	Sweet taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Dry sloppy lands and *Bari*

Buckwheat
Tite Fapar
(तिते फापर)

A. General Information

Crop	Buckwheat
Scientific name	*F. tataricum* Gaertn.
Landrace	Tite Phapar (तिते फापर)
Major locality	Niyapani, Gidikhola
Local name	*Tite Phapar* (तिते फापर)
Farmers descriptor (*Huliya*)	Elongated triangular black grain, pinkish white inflorescence

B. Agronomic traits

Plant height (cm)	100-105
Days to flowering	40-50
Days to maturity	85-95
Potential yield (kg/ropani)	50-60

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.69 ± 0.09
% of HHs cultivating the landrace	12
Conservation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Fiber and iron rich, appetite suppressant
Market traits	Medicinal use
Uses	*Roti*, green leaves for vegetable
Organolpetic quality	Bitter taste, low milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Dry and sloppy lands, *Bari*

Finger Millet
Rato Kodo
(रातो कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Rato Kodo **(रातो कोदो)**
Major locality	Gautambada, Gidikhola, Partheni, Hanku
Local name	*Kodo* **(कोदो)**
Farmers descriptor (*Huliya*)	Compact round shaped ear, light red grain color

B. Agronomic traits

Plant height (cm)	95-105
Days to flowering	85-95
Days to maturity	160-170
Potential yield (kg/ropani)	90-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	1.05 ± 0.10
% of HHs cultivating the landrace	59
Conservation status	Common
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Rich in fibre & iron content
Market traits	White flour
Uses	*Roti, Dhindo,* biomass as fodder
Organolpetic quality	Good flour quality, tasty, smooth texture

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, blast tolerant
Adaptation	Fertile river basin, dry sloppy lands and *Bari*

Finger Millet
Kalo Kodo
(कालो कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Kalo Kodo **(कालो कोदो)**
Major locality	Gautambada, Gidikhola, Partheni, Hanku
Local name	*Kodo* **(कोदो)**
Farmers descriptor (*Huliya*)	Compact panicle, reddish hint on stem and leaves, black grain

B. Agronomic traits

Plant height (cm)	95-105
Days to flowering	85-95
Days to maturity	160-170
Potential yield (kg/ropani)	100-110

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.83 ± 0.22
% of HHs cultivating the landrace	6
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in fibre and iron content
Market traits	Nutritious
Uses	*Roti, Dhindo*
Organolpetic quality	Tasty, high milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Drought and hail stone tolerant
Adaptation	Dry marginal lands, *Bari*

Foxtail Millet
Rato Kaguno
(रातो कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Rato Kaguno (रातो कागुनो)
Major locality	Gidikhola, Niyapani
Local name	*Kaguno* (कागुनो)
Farmers descriptor (*Huliya*)	Red grains, reddish brown elongated panicle

B. Agronomic traits

Plant height (cm)	120-130
Days to flowering	140-150
Days to maturity	160-170
Potential yield (kg/ropani)	75-85

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.04 ± 0.06
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Nutritious and medicinal use
Uses	*Kheer, Bhat*
Organolpetic quality	Smooth, sticky *Bhat*

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	*Bari* and marginal uplands

Foxtail Millet

Aule Kaguno

(औले कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Aule Kaguno (औले कागुनो)
Major locality	Gidikhola, Niyapani
Local name	*Kaguno* (कागुनो)
Farmers descriptor (*Huliya*)	Pale yellow grains, finger like panicle appreance at the tip

B. Agronomic traits

Plant height (cm)	130-135
Days to flowering	120-130
Days to maturity	145-155
Potential yield (kg/ropani)	70-80

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.038 ± 0.00
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in fibre and iron, appetite suppressant
Market traits	Creamy white grain, good for diabetic patient
Uses	*Kheer, Bhat*
Organolpetic quality	Smooth, sticky *Bhat*

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Dry lands and *Bari*

Foxtail Millet

Pahenlo-seto Kaguno

(पहेंलो/सेतो कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Pahenlo/seto Kaguno (पहेंलो/सेतो कागुनो)
Major locality	Gidikhola, Niyapani
Local name	*Kaguno* (कागुनो)
Farmers descriptor (*Huliya*)	Yellowish white grain, light yellow short panicle

B. Agronomic traits

Plant height (cm)	130-140
Days to flowering	115-125
Days to maturity	140-150
Potential yield (kg/ropani)	70-80

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.25 ± 0.01
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in fibre and iron content
Market traits	Attractive grain color
Uses	*Kheer, Bhat*
Organolpetic quality	Smooth and sticky *Bhat*

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant and less lodging
Adaptation	Dry land and *Bari*

Proso Millet

Dudhe Chino

(दुधे चिनो)

A. General Information

Crop	Proso Millet
Scientific name	*Panicum miliaceum* L.
Landrace	Dudhe Chino (दुधे चिनो)
Major locality	Gidikhola, Niyapani
Local name	*Chino* (चिनो)
Farmers descriptor (*Huliya*)	Short panicle, short plant, white grain

B. Agronomic traits

Plant height (cm)	105-115
Days to flowering	85-95
Days to maturity	115-130
Potential yield (kg/ropani)	30-40

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.85 ± 0.23
% of HHs cultivating the landrace	4
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Medicinal use, white grain
Uses	*Kheer, Bhat*
Organolpetic quality	Good cooking quality, tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant and less lodging
Adaptation	*Bari*, marginal lands

Proso Millet

Haade Chino

(हाडे चिनो)

A. General Information

Crop	Proso Millet
Scientific name	*Panicum miliaceum* L.
Landrace	Haade Chino (हाडे चिनो)
Major locality	Gidikhola, Niyapani
Local name	*Chino* (चिनो)
Farmers descriptor (*Huliya*)	Larger panicle and grain size, reddish grain with hard husk

B. Agronomic traits

Plant height (cm)	105-115
Days to flowering	85-95
Days to maturity	115-125
Potential yield (kg/ropani)	60-65

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.40 ± 0.00
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	Medicinal value
Uses	*Kheer, Bhat*
Organolpetic quality	Tasty as *Bhat*

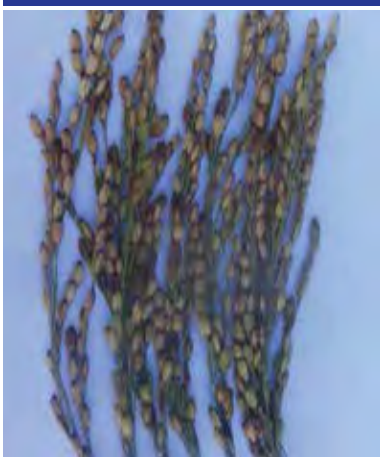
E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant and less lodging
Adaptation	Dry and marginal lands, *Bari*

Rice

Jumli Marshi

(जुम्ली मार्सि)



A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Jumli Marshi (जुम्ली मार्सि)
Major locality	Gautambada, Partheni, Hanku, Niyapani, Gidikhola
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Bold grain, dark redish panicle, medium plant height

B. Agronomic traits

Plant height (cm)	100-110
Days to flowering	85-95
Days to maturity	155-165
Potential yield (kg/ropani)	185-195

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.16 ± 0.16
% of HHs cultivating the landrace	72
Conservation status	Common
Current trend of the landrace	Stable

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	Red rice, tasty
Uses	*Bhat, Kheer, Selroti*, straw as fodder
Organolpetic quality	Good aroma and tasty

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant, non lodging
Adaptation	*Khet,* river basins

Rice
Darime
(दारिमे)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Darime (दारिमे)
Major locality	Gautambada
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Medium plant height, light black bold grains

B. Agronomic traits

Plant height (cm)	80-100
Days to flowering	90-100
Days to maturity	160-170
Potential yield (kg/ropani)	250-260

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.00 ± 0.69
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Red rice, tasty
Uses	*Bhat, Kheer, Selroti,* straw as fodder
Organolpetic quality	Good aroma, tasty

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant and non lodging
Adaptation	River basins, *Khet*

Rice
Melte
(मेल्टे)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Melte (मेल्टे)
Major locality	Gautambada
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Medium plant height, dark brown grain, dark green plant

B. Agronomic traits

Plant height (cm)	150-160
Days to flowering	80-90
Days to maturity	150-155
Potential yield (kg/ropani)	100-120

C. Current status of the landrace

Area of cultivation (ropani/HH)	2.16 ± 0.16
% of HHs cultivating the landrace	10
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Red rice
Uses	*Bhat, Kheer, Selroti,* straw as fodder
Organolpetic quality	Tasty and good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant, non lodging
Adaptation	River basins and *Khet*

Rice

Kali Marshi
(कालि मार्सि)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Kali Marshi (कालि मार्सि)
Major locality	Hanku, Gautambada, Partheni, Niyapani
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Medium hight dark green plant, dark red color panicle and grain

B. Agronomic traits

Plant height (cm)	100-110
Days to flowering	85-100
Days to maturity	145-155
Potential yield (kg/ropani)	90-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	<1
% of HHs cultivating the landrace	<1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	Red rice
Uses	*Bhat, Kheer, Selroti,* straw as fodder
Organolpetic quality	Tasty

E. Adaptability

Response to abiotic and biotic stresses	Cold tolerant and non lodging
Adaptation	River basin and *Khet*

Rice
Pakhe/Dhokrey
(पाखे/धोके)

A. General Information

Crop	Rice-Cold Tolerant
Scientific name	*Oryza sativa* L.
Landrace	Pakhe/Dhokrey (पाखे/धोके)
Major locality	Gautambada, Gidikhola
Local name	*Dhan* (धान)
Farmers descriptor (*Huliya*)	Light brown long awned panicle

B. Agronomic traits

Plant height (cm)	150-160
Days to flowering	80-90
Days to maturity	145-155
Potential yield (kg/ropani)	100-110

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5 ± 0.16
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	NS
Uses	*Bhat, Kheer, Selroti,* straw as fodder
Organolpetic quality	Bold and hard *Bhat*

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, hail stone tolerant
Adaptation	Dry and marginal lands, *Bari*

4.4.1 Overview of Chhipra, Humla

Chippra lies in ward no 4 of Kharpunath ruralmunicipality (formerly in Chhipra VDC) of Humla with total area of 33.42 Km^2 and is located near middle of the district. Arable land is estimated to be less than 1% and most of the land area is rocky making most of the agriculture activities difficult and average land ownership of Chippra is 0.18 ha per household (HH) which is less than national average (0.70 ha per HH).

Map of Humla showing Chhipra and Kharpunath Rural Municipality

Geography	29° 55' -29°57' N and 81° 46'-81° 52' E Altitude: 2000-4800 masl
Climate	Temp. range: 0-20°C Avg. rainfall: 50 mm warm temperate and cool temperate
Demography	Total HH: 234 Avg. family size: 6
Average farm size (ropani/hhs)	6.75 ± 0.58 (0.34 ± 0.02 ha/HH)
Ethnicity	Chhetri (53%), Thakuri (25%), Dalit (15%), Brahmin (7%)
Varietal Richness of Mandate Crops	Amaranths- 2, Naked Barley-2, Barley-1, Beans-8, Buckwheat-2, Finger Millet-4, Foxtail Millet-3, Proso Millet-3, Rice-8

Source: VDC Profile and Parajuli et al. (2016)

Agriculture is the most important source of livelihood with farming system consisting of agronomical crops, horticultural crops (e.g. apple, walnut, peach, vegetables and potato) and livestock (cattle, goat, sheep and poultry). In the lower altitude, rice, maize, wheat, barley, naked barley, beans, finger millet and proso millet are the major crops whereas only few crops such as buckwheat, finger millet, proso millet, barley, naked barley, wheat, and potato are grown in the higher altitude.

Rainy season starts from April-June and ends during September-October. While winter crops are sown in November and harvested in late May to early June. The cropping calendar with time for sowing, intercultural operation and harvest of mandate crops is presented in Annex 1.

Food sufficiency of Chhipra is less than 5 months and people depend upon food aid supplied by Nepal Food Corporation or purchase high priced food transported via air from Nepalgunj or Surkhet (Parajulit et al., 2016). This again emphasize the need of including local crops in research and development.

All the mandate crops are grown in Chippra. Among the mandate crops, finger millet is cultivated in highest average area (1.17 ropani) followed by naked barley (0.88 ropani) and rice (0.86 ropani) whereas, amaranth is cultivated under least average area per household. Common bean has highest productivity followed by barley and foxtail millet. Similarly, number of household cultivating finger millet is highest (almost all HH) followed by proso millet-89%, bean-88%, naked barley-86% and amaranth-83% (Parajulit et al., 2016).

Amaranth
Mal Marshe
(माल मार्से)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus caudatus* L.
Landrace	Mal Marshe (माल मार्से)
Major locality	Chippra , Nalla
Local name	*Latte* (लट्टे), *Marshe* (मार्से)
Farmers descriptor (*Huliya*)	Red and drooping type inflorescence, red pigmentation in leaf, red grain

B. Agronomic traits

Plant height (cm)	225-230
Days to flowering	70-80
Days to maturity	120-130
Potential yield (kg/ropani)	25-30

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.09 ± 0.018
% of HHs cultivating the landrace	63
Conservation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Good for bone (rich in calcium)
Market traits	Religious value
Uses	*Roti, Dhindo, Laddu*
Organolpetic quality	Good taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy and dry land

Amaranth
Thado Marse
(ठाडो मार्से)

A. General Information

Crop	Amaranth
Scientific name	*Amaranthus hypochondriacus*
Landrace	Thado Marse (ठाडो मार्से)
Major locality	Chippra
Local name	*Latte* (लट्टे), *Marshe* (मार्से)
Farmer descriptor (*Huliya*)	White grains, white grain, dropping inflorescence

B. Agronomic traits

Plant height (cm)	210-125
Days to flowering	75-80
Days to maturity	120-130
Potential yield (kg/ropani)	19-22

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.08 ± 0.023
% of HHs cultivating the landrace	43
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Good for bone (rich in calcium)
Market traits	Religious value
Uses	*Roti, Dhindo, Thukpa*
Organolpetic quality	Sticky and tasty flour

E. Adaptability

Response to abiotic and biotic stresses	Drought and pest tolerant
Adaptation	Dry and sloppy land

Naked Barley

Kunalo Uwa

(कुनालो उवा)

A. General Information

Crop	Naked Barley
Scientific name	*Hordeum vulgare* L. var. *nudum* Hook F.
Landrace	Kunalo Uwa (कुनालो उवा)
Major locality	Nalla
Local name	*Uwa* (उवा)
Farmer descriptor (*Huliya*)	White grain with pointed tip, dense awn, white and slightly pointed grain

B. Agronomic traits

Plant height (cm)	70-75
Days to flowering	80-90
Days to maturity	105-110
Potential yield (kg/ropani)	93-95

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.60 ± 0.07
% of HHs cultivating the landrace	24
Conservation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Grain, flour
Uses	*Roti, Satu,* straw as fodder
Organolpetic quality	Good in taste, high milling recovery

E. Adaptability

Response to abiotic and biotic stresses	Cold and hail stone tolerant
Adaptation	Rainfed and irrigated land

Naked barley
Rato Uwa
(रातो उवा)

A. General Information

Crop	Naked Barley
Scientific name	*Hordeum vulgare* L. var. *nudum* Hook F.
Landrace	Rato Uwa (रातो उवा)
Major locality	Nalla
Local name	*Uwa* (उवा)
Farmer descriptor (*Huliya*)	Red colored grain

B. Agronomic traits

Plant height (cm)	55-60
Days to flowering	80-90
Days to maturity	105-110
Potential yield (kg/ropani)	98-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.5±0
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	Good for making liquor, nutritious flour
Uses	*Roti, Satu,* Liquor, fodder for animals
Organolpetic quality	Good in taste

E. Adaptability

Response to abiotic and biotic stresses	Cold and drought tolerant
Adaptation	Sloppy and dry land

Barley
Seto Jau
(सेतो जौ)

A. General Information

Crop	Barley
Scientific name	*Hordeum vulgare* L.
Landrace	Seto Jau **(सेतो जौ)**
Major locality	Nalla
Local name	*Jau* **(जौ)**
Farmer descriptor (*Huliya*)	White panicle, long awn, light skin brown grain color

B. Agronomic traits

Plant height (cm)	74-80
Days to flowering	90-95
Days to maturity	115-120
Potential yield (kg/ropani)	80-85

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.39±0.09
% of HHs cultivating the landrace	13
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Good for *Satu*
Uses	*Roti, Satu,* straw as fodder
Organolpetic quality	Tasty and good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, disease tolerant (powdery mildew)
Adaptation	Dry and marginal lands

Beans

Malae Simi
(माले सिमी)

A. General Information

Crop	Common Beans
Scientific name	*Phaseolus vulgaris* L.
Landrace	Malae Simi (माले सिमी)
Major locality	Chippra , Nalla
Local name	Simi (सिमी)
Farmer descriptor (*Huliya*)	Dark red pigmented long pods, large grain size

B. Agronomic traits

Plant height (cm)	115-120
Days to flowering	50-60
Days to maturity	100-110
Potential yield (kg/ropani)	190-195

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.32 ± 0.06
% of HHs cultivating the landrace	49
Consevation status	Common
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Protein rich and nutritious
Market traits	Fresh green pods, big grains,
Uses	*Daal,* Curry
Organolpetic quality	Good in taste

E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Lowland and fertile *Bari*

Beans
Kalo Simi
(कालो सिमी)

A. General Information

Crop	Common Beans
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Simi (कालो सिमी)
Major locality	Chippra, Nalla
Local name	*Simi* (सिमी)
Farmer descriptor (*Huliya*)	Black grain, pointed tip medium size pod

B. Agronomic traits

Plant height (cm)	115-120
Days to flowering	50-60
Days to maturity	100-110
Potential yield (kg/ropani)	200-205

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.29 ± 0.03
% of HHs cultivating the landrace	43
Consevation status	Common
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Protein rich
Market traits	Shiny black grain, tasty
Uses	*Daal*, Curry, fresh pod as vegetable
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Lowland and fertile *Bari*

Beans

Dalle Seto Simi

(डल्ले सेतो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Dalle Seto Simi (डल्ले सेतो सिमी)
Major locality	Lekha
Local name	*Simi* (सिमी)
Farmer descriptor (*Huliya*)	Short plant height, creamy round grain

B. Agronomic traits

Plant height (cm)	110-115
Days to flowering	55-60
Days to maturity	100-110
Potential yield (kg/ropani)	150-155

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.17 ± 0.07
% of HHs cultivating the landrace	6
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Small grain, good in taste
Uses	*Daal,* Curry
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Fertile lowlands and *Bari*

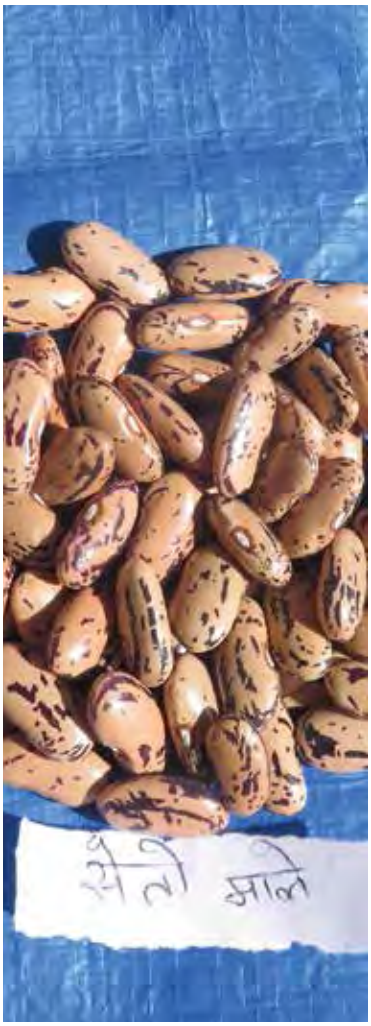
Beans

Seto Male Simi

(सेतो माले सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Seto Male Simi (सेतो माले सिमी)
Major locality	Chhipra, Majha, Lekha
Local name	*Simi* (सिमी)
Farmer descriptor (*Huliya*)	Creamy purple stripped grains



B. Agronomic traits

Plant height (cm)	105-110
Days to flowering	55-60
Days to maturity	100-110
Potential yield (kg/ropani)	130-135

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.30 ± 0.08
% of HHs cultivating the landrace	6
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Attractive grain color and taste
Uses	*Daal,* Curry
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Lowland and fertile *Bari*

Beans

Pahenlo Simi
(पहेंलो सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Pahenlo Simi (पहेंलो सिमी)
Major locality	Chhipra, Majha, Lekha
Local name	*Simi* (सिमी)
Farmer descriptor (*Huliya*)	Short plant height, yellow grain color

B. Agronomic traits

Plant height (cm)	115-118
Days to flowering	50-60
Days to maturity	100-110
Potential yield (kg/ropani)	130-135

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.10 ± 0.02
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Good cooking quality, good taste
Uses	*Daal,* Curry
Organolpetic quality	Smooth texture in *Daal*

E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Lowland and fertile *Bari*

Beans

Rato Maale Simi

(रातो माले सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Rato Maale Simi (रातो माले सिमी)
Major locality	Chhipra, Majha, Lekha
Local name	*Simi* (सिमी)
Farmer descriptor (*Huliya*)	Medium red grain with white patches

B. Agronomic traits

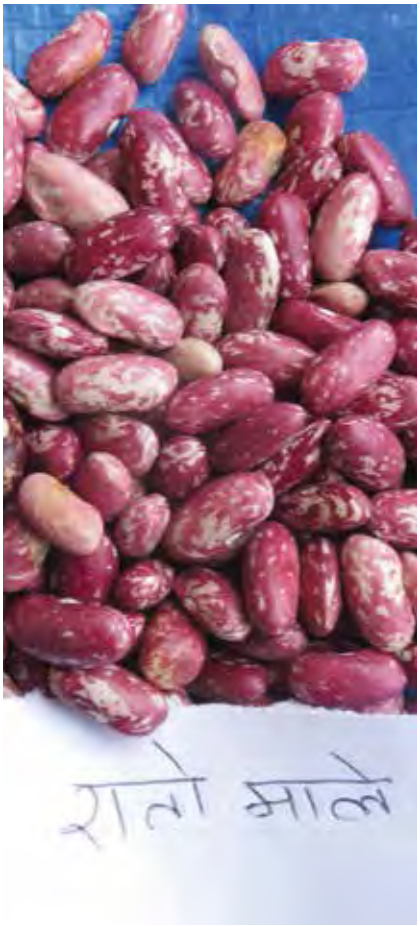
Plant height (cm)	105-110
Days to flowering	50-60
Days to maturity	100-110
Potential yield (kg/ropani)	110-115

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.10 ± 0.05
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein, appetite suppressant
Market traits	Attractive grain color and taste
Uses	*Daal,* Curry
Organolpetic quality	Good in taste



E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Lowland and fertile *Bari*

Beans

Sano Seto Simi

(सानो सेतो समी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Sano Seto Simi (सानो सेतो समी)
Major locality	Chhipra, Majha, Lekha
Local name	*Simi* (सिमी)
Farmer descriptor (*Huliya*)	Short plant height, milky white round grains

B. Agronomic traits

Plant height (cm)	110-115
Days to flowering	50-60
Days to maturity	100-110
Potential yield (kg/ropani)	135-140

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.10 ± 0.04
% of HHs cultivating the landrace	2
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Attractive grain color and taste
Uses	*Daal,* Curry
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Lowland and fertile *Bari*

Beans

Kalo Lahare Simi

(कालो लहरे सिमी)

A. General Information

Crop	Common Bean
Scientific name	*Phaseolus vulgaris* L.
Landrace	Kalo Lahare Simi (कालो लहरे सिमी)
Major locality	Chhipra, Majha, Lekha
Local name	*Simi* (सिमी)
Farmer descriptor (*Huliya*)	Large black grain with tendril

B. Agronomic traits

Plant height (cm)	115-120
Days to flowering	50-60
Days to maturity	100-110
Potential yield (kg/ropani)	121-125

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.20 ± 0.10
% of HHs cultivating the landrace	5
Consevation status	Rare/Endangered
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Rich in protein
Market traits	Good taste
Uses	*Daal*, Curry
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Prone to drought, disease tolerant
Adaptation	Lowland and fertile *Bari*

Buckwheat

Mithe Phapar

(मिठे फापर)

A. General Information

Crop	Buckwheat
Scientific name	*Fagopyrum esculentum* Moench.
Landrace	Mithe Phapar (मिठे फापर)
Major locality	Chhipra, Majha, Lekha
Local name	*Phapar* (फापर)
Farmer descriptor (*Huliya*)	White flower, red steam color, pointed grains

B. Agronomic traits

Plant height (cm)	85-90
Days to flowering	40-50
Days to maturity	90-110
Potential yield (kg/ropani)	81-85

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.61 ± 0.24
% of HHs cultivating the landrace	10
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Sweet taste
Uses	*Pani roti, Chini roti*
Organolpetic quality	Tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought and disease tolerant
Adaptation	Upland and dry *Bari*

Buckwheat

Tite Phapar

(तिते फापर)

A. General Information

Crop	Buckwheat
Scientific name	*F. tataricum* Gaertn.
Landrace	Tite Phapar (तिते फापर)
Major locality	Lekha
Local name	*Phapar* (फापर)
Farmer descriptor (*Huliya*)	Big and black grains, blunt grains

B. Agronomic traits

Plant height (cm)	80-87
Days to flowering	40-50
Days to maturity	90-110
Potential yield (kg/ropani)	94-100

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.81 ± 0.10
% of HHs cultivating the landrace	58
Conservation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant
Market traits	Medicinal value
Uses	*Pani roti, Chini roti*
Organolpetic quality	Bitter taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, disease tolerant
Adaptation	Upland and dry *Bari*

Finger Millet

Ryaule/Rato Kodo

(रातो कोदो)

A. General Information

Crop	Finger millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Ryaule/Rato kodo (रातो कोदो)
Major locality	Majha
Local name	*Kodo* (कोदो)
Farmer descriptor (*Huliya*)	Small panicle and grain size, black straw, compact ears

B. Agronomic traits

Plant height (cm)	90-110
Days to flowering	100-110
Days to maturity	150-155
Potential yield (kg/ropani)	79-83

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.87 ± 0.16
% of HHs cultivating the landrace	33
Consevation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Appetite suppressant, iron rich, good for health
Market traits	Good in taste
Uses	*Roti, Dhindo,* straw as fodder
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy land and *Bari*

Finger Millet
Pahenlo Kodo
(पहेंलो कोदो)

A. General Information

Crop	Finger millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Pahenlo Kodo (**पहेंलो कोदो**)
Major locality	Nalla
Local name	*Kodo* (**कोदो**)
Farmer descriptor (*Huliya*)	Yellowish brown grains

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	105-110
Days to maturity	150-157
Potential yield (kg/ropani)	70-75

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.80 ± 0.28
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Iron rich, appetite suppressant
Market traits	Tasty
Uses	*Roti, Dhindo, Thukpa,* straw as fodder
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy lands and *Bari*

Finger Millet

Aankule/Aulae Kodo

(औले कोदो)

A. General Information

Crop	Finger millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Aankule/Aulae Kodo (औले कोदो)
Major locality	Chhipra
Local name	*Kodo* (कोदो)
Farmer descriptor (*Huliya*)	Fingers like panicle, black straw, open ears

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	100-105
Days to maturity	150-155
Potential yield (kg/ropani)	73-75

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.80 ± 0.29
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant, iron rich
Market traits	NS
Uses	*Roti*, *Dhindo*, straw as fodder
Organolpetic quality	Good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Drought and disease tolerant
Adaptation	Dry sloppy lands and *Bari*

Finger Millet
Lapche Kodo
(लाप्च्या कोदो)

A. General Information

Crop	Finger Millet
Scientific name	*Eleusine coracana* Gaertn.
Landrace	Lapche (**लाप्च्या**)
Major locality	Chhipra
Local name	*Kodo* (**कोदो**)
Farmer descriptor (*Huliya*)	Black straw, semi compact ear

B. Agronomic traits

Plant height (cm)	95-100
Days to flowering	100-105
Days to maturity	155-160
Potential yield (kg/ropani)	75-80

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.80 ± 0.30
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	NS
Uses	*Roti, Dhindo,* straw as fodder
Organolpetic quality	Fine flour texture and tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Dry lands and *Bari*

Foxtail Millet
Kalo Kaguno
(कालो कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Kalo (कालो)
Major locality	Chhipra
Local name	*Kaguno* (कागुनो)
Farmer descriptor (*Huliya*)	Black grain, black panicle

B. Agronomic traits

Plant height (cm)	255-260
Days to flowering	80-85
Days to maturity	140-145
Potential yield (kg/ropani)	157-160

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.33 ± 0.04
% of HHs cultivating the landrace	49
Consevation status	Vunerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant and nutritious
Market traits	Good colour, good eating quality
Uses	*Bhat*, Liquor, Pudding
Organolpetic quality	Good in taste as pudding

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Marginal and dry land

Foxtail Millet

Pahenlo Kaguno

(पहेंलो कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Pahenlo Kaguno (पहेंलो कागुनो)
Major locality	Nalla
Local name	*Kaguno* (कागुनो)
Farmer descriptor (*Huliya*)	Yellow grain, yellow panicle

B. Agronomic traits

Plant height (cm)	255-260
Days to flowering	85-90
Days to maturity	135-140
Potential yield (kg/ropani)	125-130

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.36 ± 0.05
% of HHs cultivating the landrace	31
Conservation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant and nutritious
Market traits	High milling recovery, tasty
Uses	*Bhat*, Liquor, Pudding
Organolpetic quality	Good as Pudding

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Sloppy lands and *Bari*

Foxtail Millet
Seto Kaguno
(सेतो कागुनो)

A. General Information

Crop	Foxtail Millet
Scientific name	*Setaria italica* (L.) P. Beauv.
Landrace	Seto Kaguno (सेतो कागुनो)
Major locality	Nalla (नाल्ला)
Local name	*Kaguno* (कागुनो)
Farmer descriptor (*Huliya*)	Brown panicle, light brown grains

B. Agronomic traits

Plant height (cm)	260-265
Days to flowering	85-90
Days to maturity	140-145
Potential yield (kg/ropani)	102-105

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.36 ± 0.06
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Appetite suppressant and nutritious
Market traits	Good for diabetic patient
Uses	*Bhat*, *Raksi*
Organolpetic quality	Smooth texture, good taste as rice

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Upland *Bari* and dry land

Proso Millet

Dudhe Chino

(दुधे चिनो)

A. General Information

Crop	Porso Millet
Scientific name	*Panicum miliaceum* L.
Landrace	Dudhe Chino (दुधे चिनो)
Major locality	Chhipra
Local name	*Chino* (चिनो)
Farmer descriptor (*Huliya*)	Milky white grain, white panicle, long awn, coarse grain

B. Agronomic traits

Plant height (cm)	145-150
Days to flowering	40-45
Days to maturity	85-90
Potential yield (kg/ropani)	104-107

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.75 ± 0.06
% of HHs cultivating the landrace	89
Conservation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Appetite suppressant and nutritious
Market traits	White grain, good eating quality
Uses	*Kheer, Bhat, Laddu*
Organolpetic quality	Soft bold rice

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant
Adaptation	Upland and *Bari*

Proso Millet
Rato Chino
(रातो चिनो)

A. General Information

Crop	Proso Millet
Scientific name	*Panicum miliaceum* L.
Landrace	Rato Chino (रातो चिनो)
Major locality	Simikot
Local name	*Chino* (चिनो)
Farmer descriptor (*Huliya*)	White panicle, long awn, coarse and mild red grains

B. Agronomic traits

Plant height (cm)	155-160
Days to flowering	45-50
Days to maturity	80-85
Potential yield (kg/ropani)	80-85

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.69 ± 0.19
% of HHs cultivating the landrace	6
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Good taste
Uses	*Kheer, Bhat, Laddu*
Organolpetic quality	Soft bold rice

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, cold tolerant
Adaptation	Upland *Bari*

Proso Millet
Kaptade Chino
(कप्ताडे चिनो)

A. General Information

Crop	Proso Millet
Scientific name	*Panicum miliaceum* L.
Landrace	Kaptade Chino (कप्ताडे चिनो)
Major locality	Chhipra
Local name	*Chino* (चिनो)
Farmer descriptor (*Huliya*)	Light brown panicle, brown shaded white grains

B. Agronomic traits

Plant height (cm)	155-160
Days to flowering	45-50
Days to maturity	85-90
Potential yield (kg/ropani)	90-95

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.69 ± 0.20
% of HHs cultivating the landrace	3
Conservation status	Rare/Endangered
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	NS
Uses	*Kheer, Bhat, Laddu*
Organolpetic quality	Soft and tasty *Bhat*

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, cold tolerant
Adaptation	Upland *Bari*

Rice

Kalo /Jumli Marshi

(कालो जुम्ली मार्सि)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Kalo /Jumli Marshi (कालो जुम्ली मार्सि)
Major locality	Chhipra
Local name	*Dhan* (धान)
Farmer descriptor (*Huliya*)	Dark shaded panicle, smoky black grains

B. Agronomic traits

Plant height (cm)	135-140
Days to flowering	80-85
Days to maturity	110-115
Potential yield (kg/ropani)	170-175

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.71 ± 0.10
% of HHs cultivating the landrace	29
Consevation status	Vulnerable
Current trend of the landrace	Increasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Red rice, good eating quality
Uses	*Bhat, Kheer,* straw as fodder
Organolpetic quality	Tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, cold tolerant
Adaptation	Rainfed and irrigated land

Rice
Junge
(जुँगे)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Junge (जुँगे)
Major locality	Chhipra
Local name	*Dhan* (धान)
Farmer descriptor (*Huliya*)	Awned panicle, bright grains and brown rice

B. Agronomic traits

Plant height (cm)	135-140
Days to flowering	80-85
Days to maturity	105-110
Potential yield (kg/ropani)	154-159

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.94 ± 0.18
% of HHs cultivating the landrace	15
Conservation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Good eating quality
Uses	*Bhat, Kheer*, straw as fodder
Organolpetic quality	Good taste as rice/ pudding

E. Adaptability

Response to abiotic and biotic stresses	Water logging tolerant, cold tolerant
Adaptation	Rainfed and irrigated land, *Khet*

Rice

Dudhae Dhan (दुधे)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Dudhae Dhan (दुधे)
Major locality	Chhipra
Local name	*Dhan* (धान)
Farmer descriptor (*Huliya*)	Tail like awn in grains, light red milled grains

B. Agronomic traits

Plant height (cm)	140-145
Days to flowering	80-85
Days to maturity	100-105
Potential yield (kg/ropani)	132-135

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.60 ± 0.08
% of HHs cultivating the landrace	8
Consevation status	Vulnerable
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	NS
Uses	*Bhat, Kheer,* straw as fodder
Organolpetic quality	Good aroma

E. Adaptability

Response to abiotic and biotic stresses	Tolerate water logging, cold tolerant
Adaptation	Rainfed and irrigated land, *Khet*

Rice
Dhainale
(धैनाले)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Dhainale (धैनाले)
Major locality	Dharma
Local name	*Dhan* (धान)
Farmer descriptor (*Huliya*)	Round and light yellow grains, red milled rice

B. Agronomic traits

Plant height (cm)	150-155
Days to flowering	85-90
Days to maturity	105-110
Potential yield (kg/ropani)	125-130

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.36 ± 0.04
% of HHs cultivating the landrace	2
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	Preferred grain size
Uses	*Bhat, Kheer,* straw as fodder
Organolpetic quality	Good in taste

E. Adaptability

Response to abiotic and biotic stresses	Drought and cold tolerant
Adaptation	Rainfed and irrigated land, *Khet*

Rice
Dhokro
(धोको)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Dhokro **(धोको)**
Major locality	Dharma
Local name	*Dhan* **(धान)**
Farmer descriptor (*Huliya*)	White seed, panicle long, tall Plant height

B. Agronomic traits

Plant height (cm)	130-135
Days to flowering	80-85
Days to maturity	110-115
Potential yield (kg/ropani)	90-95

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.75 ± 0.06
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious and appetite suppressant
Market traits	NS
Uses	*Bhat, Kheer,* straw as fodder
Organolpetic quality	Good aroma

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, cold tolerant
Adaptation	Rainfed and irrigated land, *Khet*

Rice
Kalo Lumsero
(कालो लुमसेरो)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Kalo Lumsero (कालो लुमसेरो)
Major locality	Dharma
Local name	*Dhan* (धान)
Farmer descriptor (*Huliya*)	Back smoky grains and white milled rice

B. Agronomic traits

Plant height (cm)	135-140
Days to flowering	85-90
Days to maturity	100-105
Potential yield (kg/ropani)	120-125

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.69 ± 0.19
% of HHs cultivating the landrace	1
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

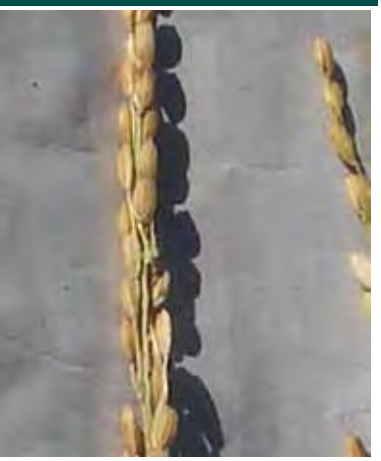
Nutritional qualities	Appetite suppressant and nutritious
Market traits	Good taste
Uses	*Bhat, Kheer,* straw as fodder
Organolpetic quality	Good in taste

E. Adaptability

Response to abiotic and biotic stresses	Drought tolerant, cold tolerant
Adaptation	Rainfed and irrigated lands, *Khet*

Rice

Khachya (खच्ये)



A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Khachya (खच्ये)
Major locality	Dharma
Local name	*Dhan* (धान)
Farmer descriptor (*Huliya*)	Brown husked grain, light brown milled rice

B. Agronomic traits

Plant height (cm)	145-150
Days to flowering	80-85
Days to maturity	115-120
Potential yield (kg/ropani)	110-125

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.69 ± 0.20
% of HHs cultivating the landrace	4
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	NS
Uses	*Bhat, Kheer,* straw as fodder
Organolpetic quality	Soft rice, good cooking quality

E. Adaptability

Response to abiotic and biotic stresses	Drought and cold tolerant
Adaptation	Rainfed and irrigated land, *Khet*

Rice
Ratanpure
(रतनपुरे)

A. General Information

Crop	Rice
Scientific name	*Oryza sativa* L.
Landrace	Ratanpure (रतनपुरे)
Major locality	Dharma
Local name	*Dhan* (धान)
Farmer descriptor (*Huliya*)	Dark shaded brown grains, white milled rice

B. Agronomic traits

Plant height (cm)	150-155
Days to flowering	85-90
Days to maturity	115-120
Potential yield (kg/ropani)	85-90

C. Current status of the landrace

Area of cultivation (ropani/HH)	0.71 ± 0.09
% of HHs cultivating the landrace	3
Consevation status	Rare/Endangered
Current trend of the landrace	Decreasing

D. Use value

Nutritional qualities	Nutritious, appetite suppressant
Market traits	NS
Uses	*Bhat, Kheer,* straw as fodder
Organolpetic quality	Soft cooked rice, tasty

E. Adaptability

Response to abiotic and biotic stresses	Drought, disease and cold tolerant
Adaptation	Rainfed and irrigated lands, *Khet*

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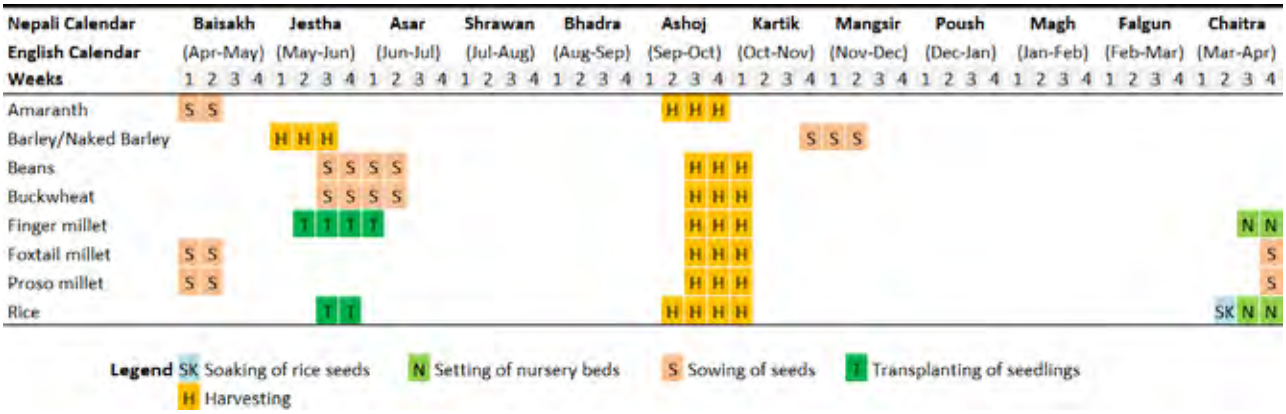
Glossary

Bari	Bari is terraced upland and is relatively dry as it is rainfed suitable for dry agriculture
Bhat	Steamed rice
Biramla	Steamed fried recipe of bean
Brahmin/Chhetri	Elite caste in Hindu community
Chini Roti	Traditional bread cook like a pan cake with added sugar
Daal	Soup like recipe of pulses
Dalit	Untouchable caste in Hindu community
Dhindo	Porridge like recipe made from flour of cereal crops
Fulaura	Roasted cake like recipe of cereal flour
Huliya	Outfit or outside look
Janjati	Indigenous caste of Nepalese community
Kheer	Rice pudding
Khet	Khet is irrigated lowland or river basin land suitable for wet agriculture
Khole	Soup like recipe made from cereal flour with added salt and spices
Laddu	Traditional sweet recipe
Pani Roti	Pan cake like recipe with added salt or sugar
Raksi	Traditional alcoholic beverage made from fermented cereals
ropani	Local unit of land measurement (1 ropani=508 square meter)
Roti/Rota	Traditional dry bread or dry pan cake
Satu	Flour of toasted cereals with added sugar, used as snacks or breakfast with milk or tea
Selroti	Roasted circular cake recipe with added sugar and used as traditional sweet

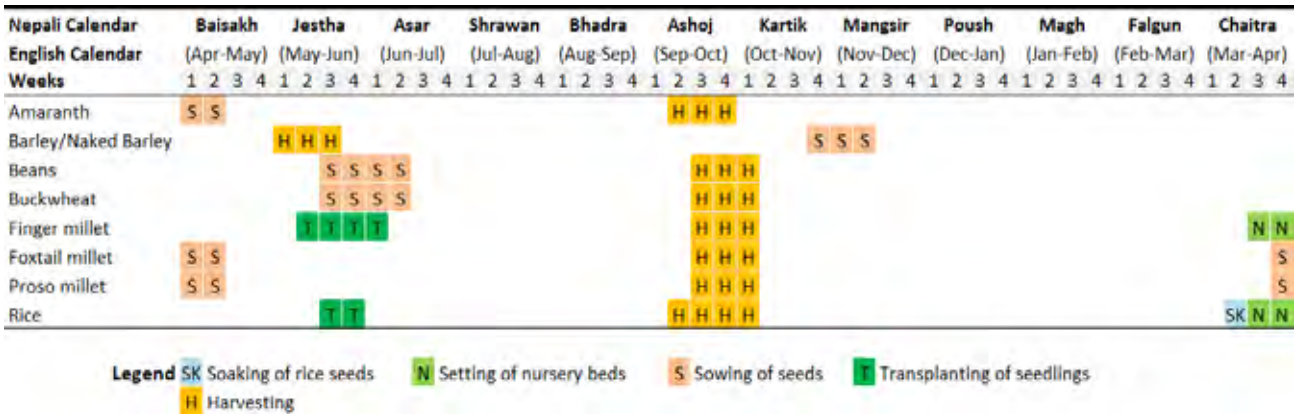
ANNEXES

Annex 1: Seasonal Calendar of Chhipra, Humla

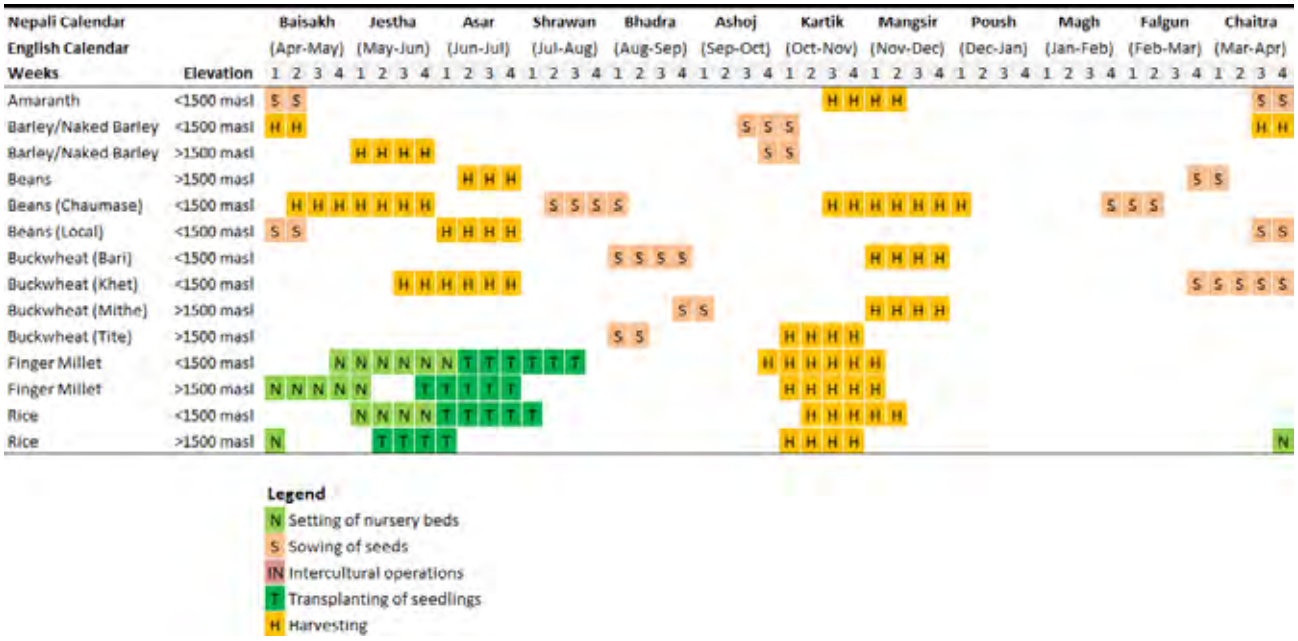


Annex 2: Seasonal Calendar of Hanku, Jumla

Annex 3: Seasonal Calendar of Lamjung



Annex 4: Seasonal Calendar of Dolakha



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