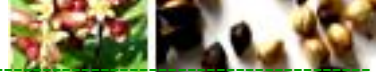

Inception Workshop for Regional TCP on Creating Enabling Environments for Nutrition-Sensitive Food and Agriculture to Address Malnutrition, 30 March 2017, Bangkok

Selected NUS and Preliminary Proposed Sites Option for Field Survey

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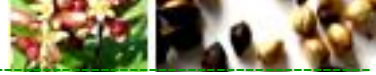
Working Team



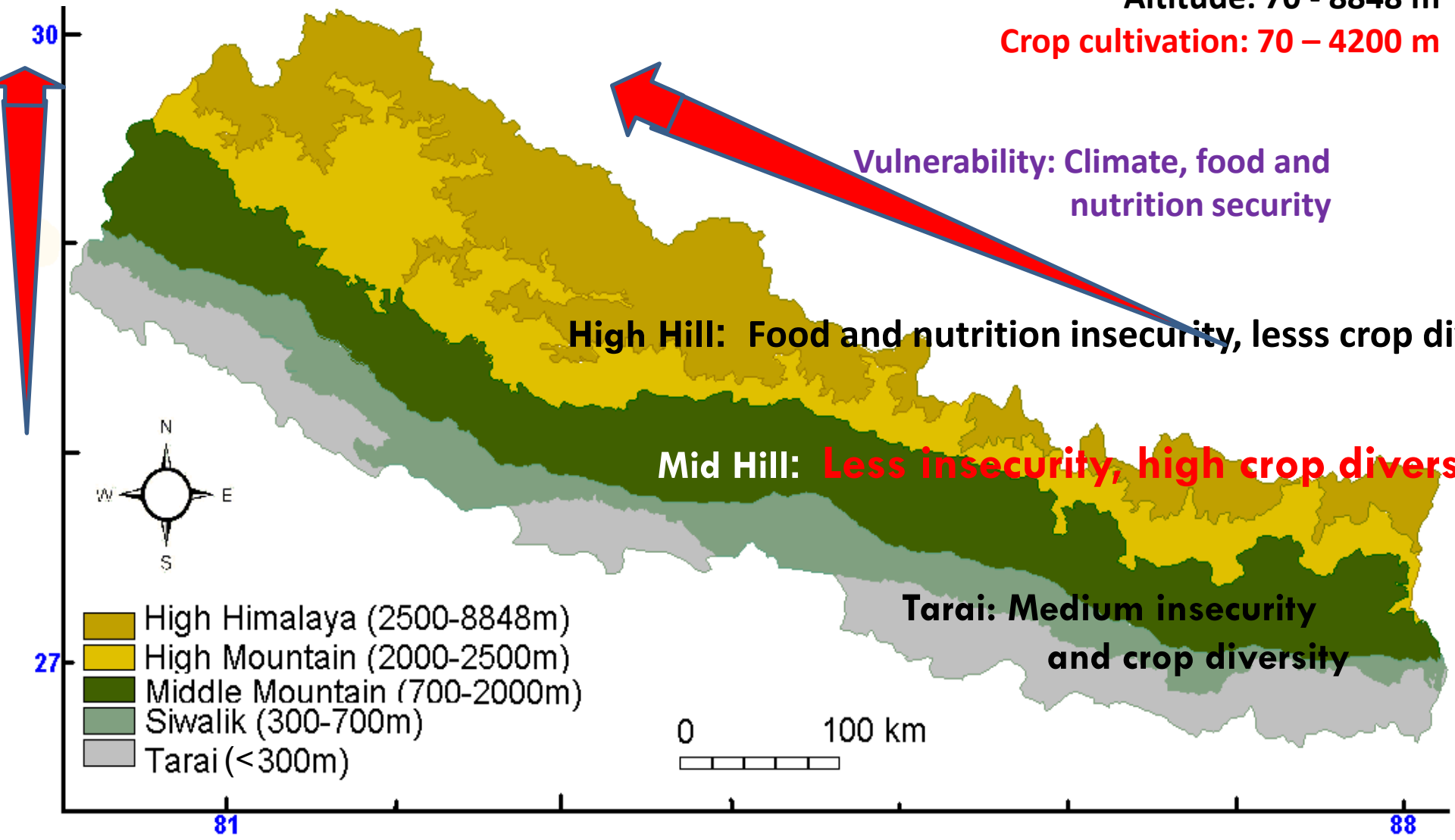
Working Crop Groups

- Cultivated species: 350
- Major food crops: Rice, wheat, maize, potato
- Neglected and Underutilized Crop Species (NUS): >200
- Future Smart Food Crops: 50

- NUS: Not released and registered crop species
- FSF: High potential for food, nutrition security and high adaptability (at current knowledge)

- Workshop for developing basis of working crop groups and listing crops

Food and Nutrition Insecurity and Crop Diversity Zones



Selected 5 Crops as FSF

1. Tatary Buckwheat, **Tite Phaper**

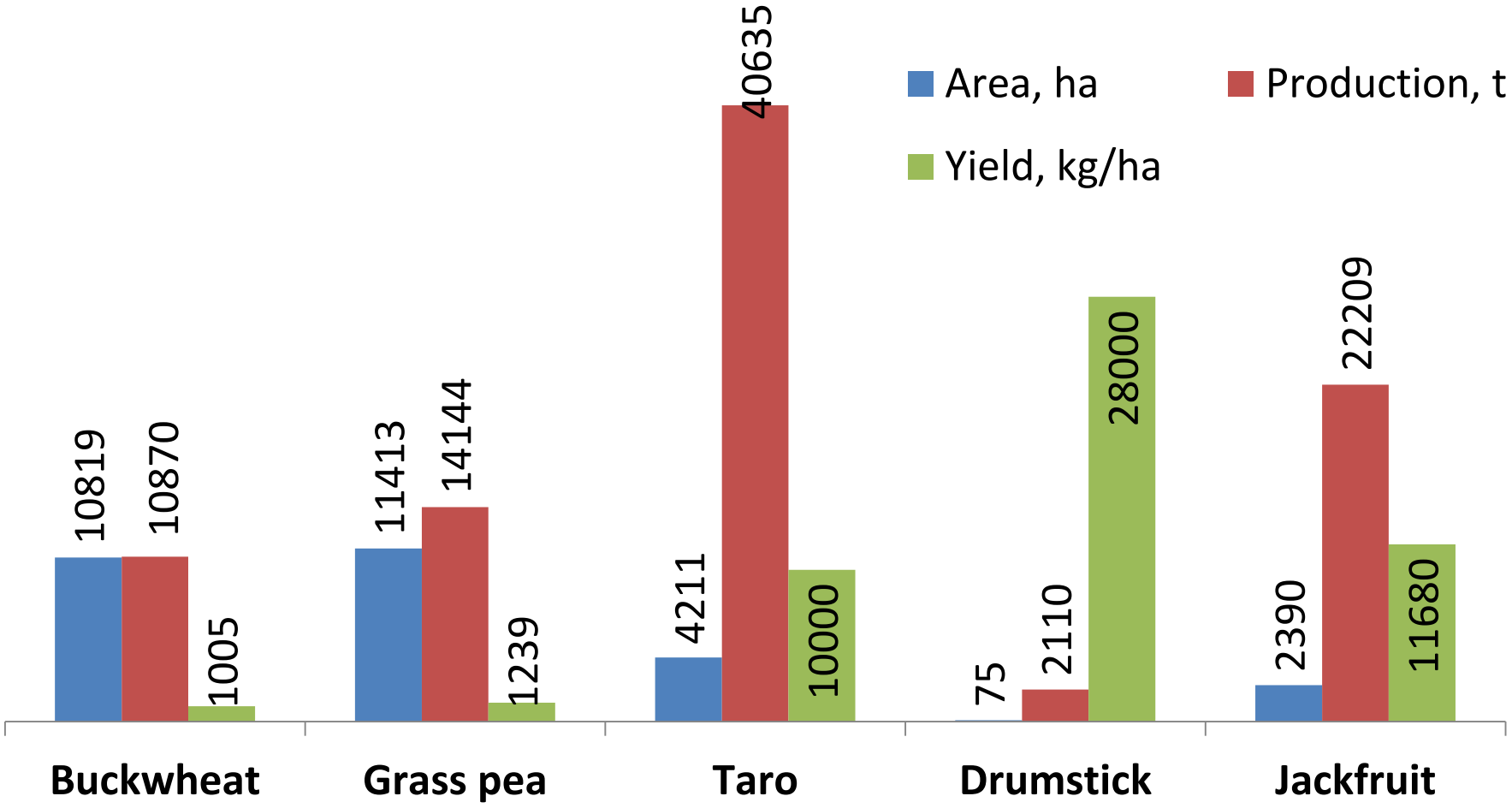
2. Grass pea, **Khesari**

5. Jackfruit, **Katahar**

3. Taro, **Pidalu**

4. Drumstick, **Sital Chini**

Areas, Production and Productivity of 5 Crops



Sources: MoAD 2015

Grass pea (1985/86): 53330 ha, 28120 t, 527 kg/ha

Tatary Buckwheat (*Fagopyrum tartaricum* Gaertn.)

- Grain as cooked rice (Bhate Phaper)
- Flour as pancake or porridge
- Tender leafs and tips as vegetable
- A short duration crop grown in marginal land
- Adapted to mountain ecosystem
- Healthy food among urban population
- Good source of rutin (that reduce cholesterol count in the blood) and dietary fiber

Major Problems: Tartary Buckwheat

- Difficult for processing
- Low yield
- Small grain size
- Water log and frost susceptible
- Damping off, powdery mildew and rust

Grass Pea (*Lathyrus sativus* L.)

- Pulse grain as vegetable soup
- Young leaves as vegetable, rolled and dried for off-season use
- As fodder

- Cheaper than other grain legumes and mostly consumed by rural poor
- Tolerant to drought, waterlog and low fertility
- Rich in protein

Major Problems: Grass pea

- Health issues due to high toxin (ODAP): Lathyrism due to neurotoxin, ODAP, 0.6-0.8% in traditional varieties
- Low yield
- Imposed a ban on marketing of grass pea since 1991/92 that led drastic reduction in area (the number one pulse in terms of area and production during 1970s)

Taro (*Colocasia esculenta* Schott)

- Corm, petiole and leaf as vegetables
- Tuber steamed and eat with honey
- Tuber cooked with black gram as soup
- Leaf and stem as dried vegetables
- Distributed widely across the country
- Taro park
- Corms rich in carbohydrate, and leaves rich in Ca and vitamin A

Major Problems: Taro

- White grub
- Wilting
- Cooking quality (itchy, stinging, and very irritating sensation to the throat)

Drumstick (*Moringa oleifera L.*)

- Young pods and shoots as vegetables
- Low cost feed
- Used for water purification, hand washing
- Cooling effect after eating seeds
- A fast-growing drought-resistant tree and widely cultivated
- Year-round flowering
- Nutritious vegetable (medicinal value, rich in vitamin A)

Major Problems: Drumstick

- Propagation
- Hairy caterpillar
- Tall, difficult to harvest
- Low yield
- Expensive

Jackfruit (*Artocarpus heterophyllus* Lam.)

- Unripe fruit as vegetables
- Ripe fruit as fresh
- Matured seeds as vegetables, roasted, and boiled
- Wood for Theki (making ghee from yogurt)
- Year round fruiting
- High yield potential
- Treating dysentery and diarrhea
- Very nutritious fruit
- Rich in carbohydrates and protein; calcium and potassium; Vitamin A, B and C

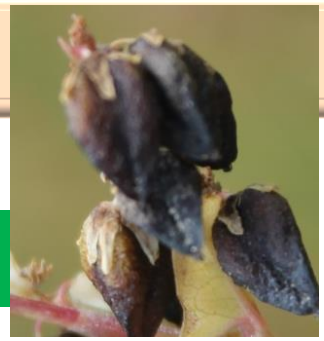
Major Problems: Jackfruit

- Poor quality for table purpose and green vegetable
- Processing
- Propagation, need many years to fruit
- Borer
- Pink disease, leaf spot, collar rot, and rust
- Low amount of eating portion

Common Intervention Areas

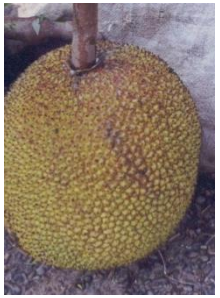
- Base line survey (focusing on food, nutrition, health and climate changes)
- Assessing crops status and diversity
- Crop improvement (breeding)
- Germplasm introduction (exchange)
- Nutrient analysis
- Processing and food recipe
- Market

Potential Sites for Field Survey



Tartary buckwheat

Taro



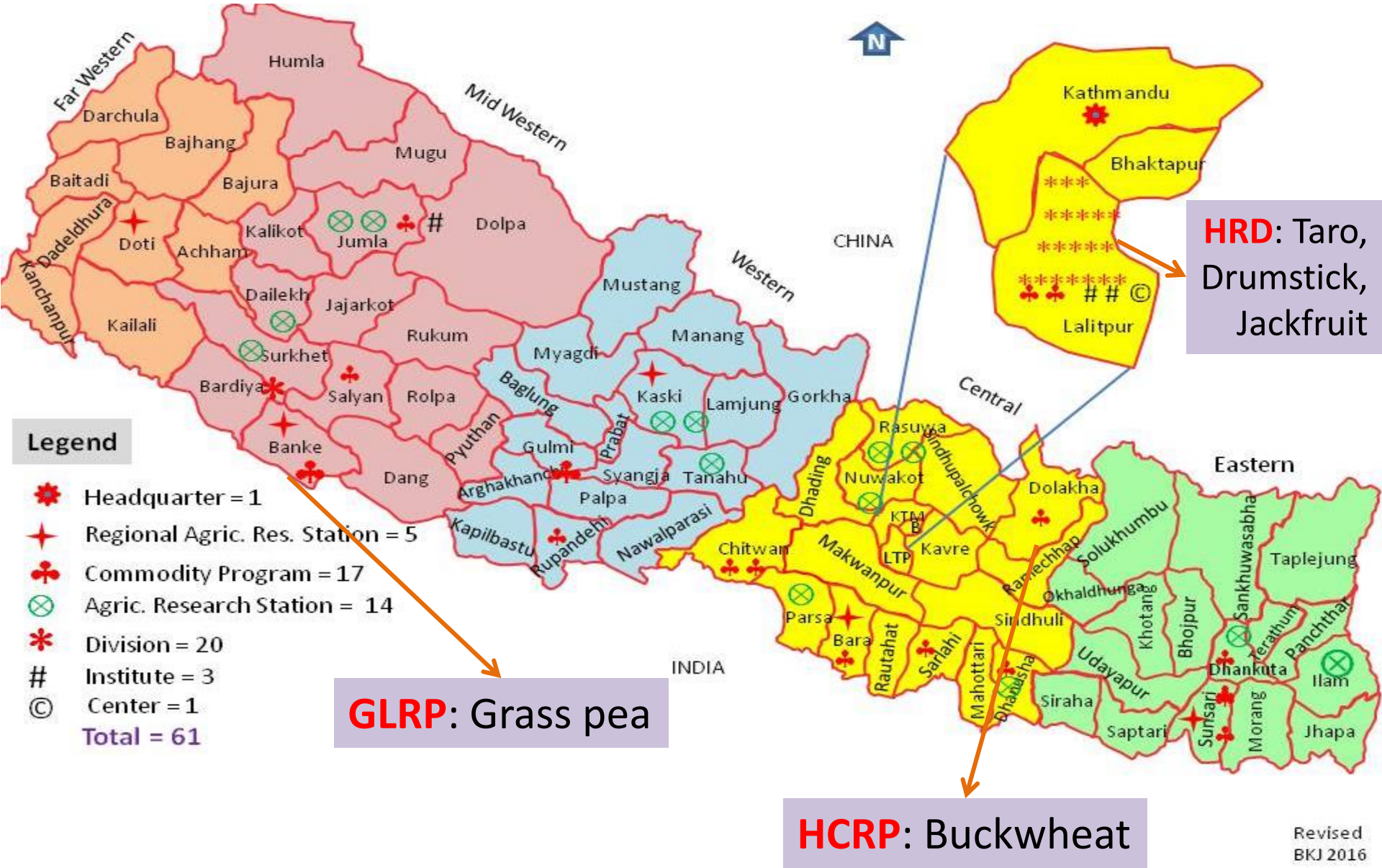
Jackfruit

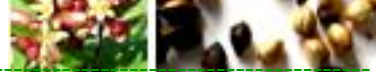
Grass pea

Drumstick

Humla
Darchula
Bajhang
Mugu
Baitadi
Bajura
Jumla
Dolpa
Dadeldhura
Doti
Achham
Kalikot
Kanchanpur
Kailali
Dailekh
Jajarkot
Mustang
Rukum
Manang
Surkhet
Myagdi
Bardiya
Salyan
Rolpa
Baglung
Kaski
Lamjung
Gorkha
Banke
Pyuthan
Gulmi
Prabat
Dang
Arghakhanchi
Syangja
Tanahu
Palpa
Kapilbastu
Rupandehi
Nawalparasi
Chitwan
Dhading
Nuwakot
Rasuwa
Sindhupalchowk
Dolakha
KTM
B
LTP
Kavre
Makwanpur
Ramechhap
Solukhumbu
Okhaldhunga
Sankhuwasabha
Taplejung
Parsa
Bara
Rautahat
Sarlahi
Sindhuli
Khotang
Bhojpur
Terathum
Panchthar
Mahottari
Dhanusha
Udayapur
Dhankuta
Ilam
Siraha
Saptari
Sunsari
Morang
Jhapa

Lead Organization





Collaborators (NARC Stations)

SN	Crop	Lead organization	Collaborators
1	Tartary buckwheat	HCRP, Dolakha	ARS Jumla, ARS Dailekh, RARS Lumle, FRD Khumaltar, Genebank Khumaltar, SARPoD Khumaltar **(6)**
2	Grass pea	GLRP, Banke	RARS Parwanipur, NORP Nawalpur, FRD Khumaltar, Genebank Khumaltar, RARS Doti, SARPoD Khumaltar **(6)**
3	Taro	HRD, Khumaltar	FRD Khumal, Genebank Khumal, SARPoD Khumal, HRS Malepatan, GRP Kapurkot, CRP Gulmi, RARS Nepalgunj **(7)**
4	Drumstick	HRD, Khumaltar	RARS Tarahara, ARS Belachapi, FRD Khumal, Genebank Khumal, SARPoD Khumal, ARS Pakharibas **(6)**
5	Jackfruit	HRD, Khumaltar	FRD Khumal, Genebank Khumal, SARPoD Khumal, RARS Tarahara, RARS Nepalgunj **(5)**

Acknowledgments

- FAO
- NARC and MoAD, Nepal

Thanks

Photo: BK Joshi, R Shrestha, KP Paudel, T Gotame, U Acharya, RB KC