Promote Diversification & Commercialization in Agriculture

Crop Sector

Improving Profitability of Horticultural and Medicinal Plants

- Develop improved propagation techniques especially through tissue culture in fruits (date palm, mango (for rootstock), guava,), and floriculture crops (bulb plants, foliage plants) for mass multiplication to improve nursery/ seedling plants quality
- Control of decline and sudden death in citrus, mango and guava
- Control of economic pests in horticulture crops (especially in citrus, guava, mango, date palm, and lichi)
- Identifying appropriate integrated pest management (IPM) approaches to reduce production cost, protect environment, improve product quality, and protect environment especially in important fruits and vegetables of the Punjab
- Identification of indigenous vegetables germplasm especially in tomatoes, potatoes, chilies, and cucurbits to enhance productivity, improve nutrient contents, enhance consumer acceptability and create tolerance to biotic and abiotic stresses
- Develop suitable, economically viable, and socially acceptable machines for mechanical planting, pruning and harvesting of fruits and vegetables.
- Identification of water saving practices and technologies, and disease free seeds and seedling for important horticultural crops.
- Development of appropriate management practices for increasing fertilizer and pesticide use efficiency
- Control of fruit drop in horticultural crops especially in citrus and mango 2A.1.10. Identification of appropriate intercropping systems for young orchards
- Identification of high value medicinal plants and develop appropriate production technology suitable for commercialized local production

Improvement in Productivity of Pulses in Irrigated Areas

- Improve the responsiveness of pulses to different inputs, especially water and fertilizers so that they can be grown in the intensive cultivation systems
- Improve productivity of major pulses (gram, lentil, mungbean, urdbean) in irrigated areas by developing high yielding varieties and develop resistance against following diseases and insects.

Crop	**Insects**	**Diseases**
Gram	Cut worm, pod borer, armyworm	Blight, wilt, root rot,
Lentil	Cut worm, Pod borer	Blight, wilt, root rot, grey mokd, rust
Mungbeans	Asponella bug, stored grain pests	Cercospora leaf spot, mungbean yellow mosaic virus
Urdbean/Black gram	Army worm	Urdbean leaf crinkle virus, mungbean yellow mosaic virus

Improvement in Profitability of Commercial Crops

- Improve the competitiveness of sugarbeet as a sugar crop by developing appropriate varieties, production technologies and harvesting & processing machines

- Improve the competitiveness of sunflower, sesame, linseed, castor and canola by developing high-yielding hybrids/ varieties with better oil contents and quality.

Mechanization for Diversification, Enhance Efficiency, and Commercialization

- Exact technologies for precision agriculture
- Develop economically viable seed drills/planters, harvesting, threshing and processing machines especially for pulses and oilseeds
- Develop economically viable and socially acceptable machines for fodder harvesting, mechanical transplanting for vegetables and rapeseed swath and pickup header

Livestock Sector

Promoting Diversification and Commercialization in Livestock

- Development of cost effective quality feed by exploring different local conventional and non-conventional feeding sources, and standardization of feeding requirements for various commercial and backyard poultry breeds, especially for different:
    - age, sex and stage of production
    - season and eco-region,
    - open and controlled houses environment

- Development of cost effective control and vaccines of the prevalent and new emerging diseases including Bird flu/ Avian influenza, Infectious Bursel Disease, New Castle Disease, Mycoplasma and Solomonella
- Control of metabolic disorders by using nutritional, and management approaches
- Development of suitable breeds for backyard poultry under local conditions, and development of optimum management (including shed and space requirements) and nutritional practices for the existing and new breed in different eco-regions to enhance poultry production efficiency
- Identification of growth promoters for enhanced production
- Development of cost effective aqua/fish feed both of floating and sinking types 2B.1.7. Control of fish diseases
- Reduce mortality of neonates by improving the survival rate of different hatched fish
- Standardization of culture techniques of Macrobrachium (Prawn) under local conditions, as alternate to fish culture especially in brackish areas
- Development and testing of hybrid vigour of different geographical strains of culture- able species of fish for development of better hybrid breeds
- Development of better breeds and management practices for size and productivity of quail