Good Agricultural Practices for Standard Quality Farm Produce

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Good Agricultural Practices are a collection of principles to apply for on-farm production and post-production processes, resulting in safe and healthy food and non-food agricultural products, while taking into account economical, social and environmental sustainability. GAPs may be applied to a wide range of farming systems and at different scales. They are applied through sustainable agricultural methods, such as integrated pest management, integrated fertilizer management and conservation agriculture. The implementation of GAP should contribute to Sustainable Agriculture and Rural Development (SARD).

Importance

Good Agricultural Practices is important because it reinforces responsible farming methods from site selection and land preparation to harvesting and handling. According to the Food and Agriculture Organization of the United Nations (FAO), GAP applies available knowledge to address environmental, economic, and social sustainability for on-farm production and post-production processes, resulting in safe and healthy agricultural products. Implementing Good Agricultural Practices can improve the livelihood of producers and the local economy as a whole, contributing to fulfill national development objectives or sustainable development goals.

GAP codes, standards and regulations

Good Agricultural Practices (GAP) codes, standards and regulations are guidelines which have been developed in recent years by the food industry, producers' organizations, governments and NGOs aiming to codify agricultural practices at farm level for a range of commodities.

Why do GAP codes, standards and regulations exist?

These GAP codes, programmes or standards exist because of growing concerns about food quality and safety worldwide; fulfillment of trade and government regulatory requirements and specific requirements especially for niche markets.

Principles of GAP

- Economically and efficiently produce sufficient (food security), safe (food safety) and nutritious food (food quality).
- Sustain and enhance natural resources (environmental sustainability).
- Maintain viable farming enterprises and contribute to sustainable livelihoods (economic viability).
- Meet cultural and social demands of society (social acceptability).

Pillars of Good Agricultural Practices

The 4 pillars of Good Agricultural Practices are the core principles used for the effective promotion and adoption of GAP. By following these pillars, farmers can build their reputations as providers of affordable yet high-quality goods and keep up with competitive export markets. As described by FAO, the 4 GAP pillars are economic viability, environmental stability, social acceptability, and food safety and quality:

➢ **GAP Pillar 1: Economic Viability**

This means to maintain viable farming enterprises and contribute to sustainable livelihoods. Generally, it refers to the profit earned from management of productive land.

➢ **GAP Pillar 2: Environmental Stability**

This means to sustain and enhance the natural resource base. The most recent Good Agricultural Practices outlines critical requirements such as assessing the risk of causing environmental harm on and off new sites, keeping records of the hazards assessed, and detailing the chemicals used to sterilize soils and substrates.

➢ **GAP Pillar 3: Social Acceptability**

This means to meet the cultural and social demands of society. An essential way of practicing this principle is to protect the agricultural workers' health from hazards brought on by the improper use of chemicals and pesticides.

- **GAP Pillar 4: Food Safety and Quality**

This means to economically and efficiently produce sufficient, safe and nutritious food. Control should begin in the field to reduce the hazards of contamination.

Objectives of GAP

- Ensuring safety and quality of produce in the food chain.
- Capturing new market advantages by modifying supply chain governance.
- Improving natural resources used workers' health and working conditions to creating new market opportunities for farmers and exporters in developing countries.

Benefits of GAP codes

- Standards and regulations are numerous, including food quality and safety improvement.
- Facilitation of market access.
- Reduction in non-compliance risks regarding permitted pesticides, Maximum Residue Limits (MRLs) and other contamination hazards.

GAP for Crop Protection

- Use resistant cultivars and varieties.
- Crop sequences, associations and cultural practices.
- Biological prevention of pests and diseases.
- Maintain regular and quantitative assessment of the balance status between pests and diseases and beneficial organisms of all crops.
- Adopt organic control practices where and when applicable.
- Apply pest and disease forecasting techniques where available.
- Determine interventions following consideration of all possible methods and their short and long-term effects on farm productivity and environmental implications. This will allow the minimizing of agrochemicals, in particular, to promote Integrated Pest Management (IPM).
- Store and use agrochemicals according to legal requirements of registration for individual crops, rates, timings, and pre-harvest intervals
- Ensure that agrochemicals are only applied by specially trained and knowledgeable persons.
- Ensure that equipment used for the handling and application of agrochemicals complies with established safety and maintenance standards.
- Maintain accurate records of agrochemical use.
- Identify the GAP in each protection method.

Crop Rotation Systems

- Sequence crops by selecting pest host relation.
- Selected crop for rotation in order to break the life cycle of pest (Jowar should be rotated with pulses to combat striga weed).
- The selected crop for rotation should not be the food of previous crop pest.
- To select appropriate crops for rotation: Analyze the pest habitat, Follow forecasts and Monitor pest and natural enemies

Privilege Resistant Species

- Cultivate plant varieties which are less prone to pest attack.
- The resistant varieties reduce production cost.
- Pest resistant transgenic crops developed for specific pest can be used. This is new avenue for reducing pesticide load.

Promote Useful Animals

- Keep good predator population.
- Promote growth of beneficial insects.
- Create an environment congenial for predators e.g. keeping bird perch in the field.
- Identify the useful animals and study their habitat for providing the required environment.

Observe and Control Populations

- Follow forecast-short term and long term.
- Study habitat of pest and congenial weather.
- Accordingly take necessary precautions to manage pest.

Give priority to mechanical and biological measures

- Get the full knowledge about botanical pesticides.
- Get the knowledge on available parasites and predator/friendly insects and pests.
- Accordingly develop action plan for mechanical and biological measures.
- Use of non cash inputs saves money.
- Use information on plant protection to analyze spatial and temporal distribution

Record Keeping

- Monitoring of performance through taking notes each year/season.
- Keep the pest management record along with season, weather and other agriculture activity.
- Document the pest load and control achieved
- Use this experience for future planning.

However, there are various challenges related to GAP. The most prominent is a definite increase in cost of production. There is lack of harmonization between existing GAP-related schemes and availability of affordable certification systems which often leads to increased confusion and certification costs for farmers and exporters. There is a high risk that small-scale farmers will not be able to seize export market opportunities unless they are adequately informed, technically prepared and organized to meet this new challenge. It is required that governments and public agencies play a facilitating role in this aspect. However, at times it has been experienced that compliance with GAP standards does not promote all the environmental and social benefits which are claimed.

Some key points for adopting GAP are:

- Selecting the right type of land to be cultivated for food crop production;
- Planting the best-quality seeds and of the most appropriate varieties;
- Use of authorized and acceptable chemical inputs (fertilizers, pesticides);
- Controlling the quality of irrigation water (in case of use);
- Use of appropriate harvesting and on-farm storing and handling techniques;
- Use of suitable methods for shipping of produce to markets or food processors.

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