

Good Agricultural Practices: Opportunities and Challenges

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Introduction:

GAP is the application of available knowledge to addressing environmental, economic and social sustainability for on-farm production and post-production processes resulting in safe and healthy food and non-food agricultural products. Several farmers in developed and developing countries already apply GAP through sustainable agricultural methods such as integrated pest management, integrated nutrient management and conservation agriculture.

Quality and safety issues

- Japan, Australia and china have in past banned imports of mangoes and grapes from India on account of presence of certain fruits flies.
- Australia desires to have complete details about pest management practices in India and a ban can lifted after signing MoU on mutual recognition of pest management practices
- Japan on other hand desire vapour heat treatment (VHT) of fruits for disinfestations before these can allow entering into that country.
- To strengthen the capabilities of Indian exporters for sticking to international quality standard.
- There is an urgent need to increase awareness and adherence to Good Agricultural Practices to meet the quality specification of international markets.
- Growing food safety concerns are leading to stringent phytosanitary control measures restrict access of our produce to develop markets.

Contaminants and Natural Toxicants

- There is many type of safety hazards associated with food that can arise during the production of foods or their subsequent handling, processing and packaging.

- Microbiological hazards include bacteria, protozoa, parasites, viruses and fungi or other toxic
- Naturally occurring toxicant in the environment such as zinc, arsenic and cyanide or in food itself such as solanine and histamine may also constitute food safety hazard.
- Toxic industrial chemicals or radioactive wastes are other potential source of food contamination. Ex: arsenic, cadmium, copper, lead, mercury, polychlorinated biphenyls.
- Contamination may enter in the food chain due to excess or improper fertilizer. Ex: cadmium, nitrate and nitrite.
- There are several key issues that require attention. These include the lack of awareness of safety and quality control issues on part of food handlers in the organized and unorganized sectors of this industry.
- Good Agricultural Practice (GAP) is common-sense farming which cares for the environment and prevents or reduces the risk hazards and food contamination occurring during production, harvesting, post-harvest handling of agricultural products
- GAP also involves complying with the law on the environment, hygiene, farm worker and animal welfare and health etc.
- GAP certification is a passport to export market.

History of Gap

In January 1997 radio address, president Bill Clinton announced a food safety initiative to improve the safety of the world food supply. In May 1997, as part of the president's food safety initiatives, the Department of Health and Human Services, the U.S. Department of Agriculture (USDA) and the Environmental Protection Agency (EPA) sent to the president a report that identified produce as an area of concern.

Definition

Good Agricultural Practices are "practices that address environmental, economic and social sustainability for on-farm processes, and result in safe and quality food and non-food agricultural products

These four 'pillars' of GAP

1. Economic viability

2. Environmental sustainability
3. Social acceptability
4. Food safety and quality

Objectives

- ✚ Ensuring food safety.
- ✚ Capturing new market.
- ✚ Judicious use of natural resources.
- ✚ Maintaining worker health and welfare.
- ✚ Income generation.
- ✚ Enhancing international trade.
- ✚ Risk assessment.
- ✚ Building consumer confidence.

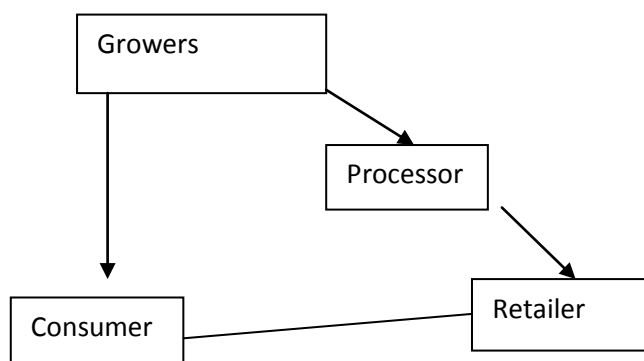
Key Elements of GAP

1. Problem prevention
2. Assessment of risk
3. Food safety commitment
4. Communication throughout the production chain
5. Mandatory employee education program at the operational level
6. Field and equipment sanitation
7. Integrated pest management
8. Oversight and enforcement
9. Verification through independent, third-party audits

Challenges related to GAP

- The main challenges related to GAP implementation include an increase in production costs, especially record keeping, residue testing and certification,
- Training
- Market information
- Storage facility
- Consumer awareness

Why it is so important?



Good Agricultural Practices for Selected Agricultural Components

- ✚ Soil
- ✚ Water
- ✚ Crop and fodder production
- ✚ Crop protection
- ✚ Animal health and welfare
- ✚ Harvest and On-farm Processing and Storage
- ✚ Energy and Waste Management
- ✚ Human Welfare, Health and Safety
- ✚ Wildlife and Landscape

Soil

- Good practices related to soil
- Establish a detailed knowledge of the nature, properties, distribution, and potential uses of soils at the farm.
- Avoid mechanical soil tillage to the extent possible.
- Enhance soil organic matter by use of crop rotations.
- Maintain soil cover to minimize erosion loss by wind and/or water.

Water

- Manage ground and soil water by proper use or avoidance of drainage where required and by build-up of soil structure and soil organic matter.
- Avoid irrigation loss and use water saving techniques.
- Provide safe & hygienic clean water points to livestock.

Crop and fodder production



- Good practices related to crop and fodder production will includes select cultivars and varieties and understanding of their characteristics, including response to sowing or planting time, productivity, quality, market acceptability and nutritional value.
- Advise crop sequences to optimize use of labour and equipment and maximize the biological benefits of weed control by competition, mechanical, biological and herbicide options,

Crop protection

- Good practices related to crop protection may includes the use of resistant cultivars and varieties, crop sequences, associations and cultural practices that maximize biological prevention of pests and diseases.
- In order to minimize the use 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
- Maintain accurate records of agrochemical use.

Animal health and welfare

- Good practices related to animal health and welfare will include those that minimize risk of infection and disease by good pasture management ,safe feeding, good housing condition
- Keep livestock ,building ,and feed facilities clean and provide adequate ,clean bedding
- Staff are properly trained in the handling and treatment of animals; seek appropriate veterinary advice to avoid disease and health problem

Harvest and on farm processing and storage

- Good practices related to harvest and on-farm processing and storage may includes the harvest food products following relevant pre-harvest intervals and withholding periods.
- provide for clean and safe handling for on-farm processing of products.

Energy and Waste Management

- Establish input-output plans for farm energy, nutrients, and agrochemicals so as to ensure efficient use and safe disposal.

- Investigate alternative energy sources to fossil fuels (wind, solar, biofuels), and adopt them where feasible.
- Identify and recycle most organic wastes and inorganic materials, where possible.
- Store fertilizers and agrochemicals safely.
- Establish emergency action procedures to minimize the risk of pollution from accidents.

Human Welfare, Health and Safety

- Regular hand washing
- No glass, metal objects, or jewellery that can fall into product
- Hair protection—tied back, hats
- Clean clothes, good health
- Clean and well-maintained toilet facilities
- Adequate hand washing facilities
- Correctly used toilet and hand washing stations

Wildlife and Landscape

- Identify and conserve wildlife habitats and landscape features, such as isolated trees, on the farm.
- Manage field margins to reduce noxious weeds and to encourage a diverse flora and fauna with beneficial species.

Good Agricultural Practices (GAP) for fresh Fruits and Vegetables

Pre-Planting Measures

- Site selection
- Manure handling and field application
- Manure storage and sourcing
- Timely application of manure
- Selection of appropriate crop

Production Measures

- Irrigation water quality
- Irrigation methods
- Field sanitation and animal exclusion

- Worker facilities and hygiene

Post-Harvest Handling

- Worker hygiene
- Monitor wash water quality
- Sanitize packinghouse and packing operations
- Pre-cooling and cold storage
- Transportation of produce from farm to market

GAP Standards

- GLOBALGAP
- ASEANGAP
- JGAP
- CHINAGAP
- SALM
- QGAP
- INDGAP

Extension Concern of GAP

- Methodologies for impact monitoring with particular respect to environmental impacts of agriculture.
- Training of trainers and institutional capacity building to ensure safety and quality of agricultural produce in particular for fresh foods and vegetables, coffee and other commodities; development of adequate laboratory facilities for product quality, lab quality assurance and control procedures; efficiency of sampling processing, etc.
- Conflict management approaches and facilitation of multi stakeholder negotiations; building alliances with private sector and NGOs.