

Impact of Agribusiness in Doubling Farmer's Income

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Abstract: Agribusiness is the industry, enterprises, and the field of study[1] of value chains in agriculture[2] and in the bio-economy,[3] in which case it is also called bio-business[4][5] or bio-enterprise. The primary goal of agribusiness is to maximize profit while satisfying the needs of consumers for products related to natural resources such as biotechnology, farms, food, forestry, fisheries, fuel, and fiber.

Studies of business growth and performance in farming have found successful agricultural businesses are cost-efficient internally and operate in favorable economic, political, and physical-organic environments. They are able to expand and make profits, improve the productivity of land, labor, and capital, and keep their costs down to ensure market price competitiveness.[6]

Agribusiness is not limited to farming. It encompasses a broader spectrum through the agribusiness system which includes input supplies, value-addition, marketing, entrepreneurship, microfinancing, and agricultural extension.

In some countries like the Philippines, creation and management of agribusiness enterprises require consultation with registered agriculturists above a certain level of operations, capitalization, land area, or number of animals in the farm.

Keywords: agribusiness, enterprise, farmer, income, cost, entrepreneurship.

INTRODUCTION

The term value chain was first popularized in a book published in 1985 by Michael Porter,[18] who used it to illustrate how companies could achieve what he called “competitive advantage” by adding value within their organization. Subsequently, the term was adopted for agricultural development purposes [19] and has now become very much in vogue among those working in this field, with an increasing number of bilateral and multilateral aid organisations using it to guide their development interventions.

At the heart of the agricultural value chain concept is the idea of actors connected along a chain producing and delivering goods to consumers through a sequence of activities.[20] However, this “vertical” chain cannot function in isolation and an important aspect of the value chain approach is that it also considers “horizontal” impacts on the chain, such as input and finance provision, extension support and the general enabling environment. The approach has been found useful, particularly by donors, in that it has resulted in a consideration of all those factors impacting on the ability of farmers to access markets profitably, leading to a broader range of chain interventions. It is used both for upgrading existing chains and for donors to identify market opportunities for small farmers.[21]

Inputs Sector

An agricultural supply store or agrocenter is an agriculturally-oriented shop where one sells agricultural supplies — inputs required for agricultural production such as pesticides, feed and fertilizers. Sometimes these stores are organized as cooperatives, where store customers aggregate their resources to purchase agricultural inputs. Agricultural supply and the stores that provide it are part of the larger Agribusiness industry.

Agricultural labor

A farmworker, farmhand or agricultural worker is someone employed for labor in agriculture. In labor law, the term "farmworker" is sometimes used more narrowly, applying only to a hired worker involved in agricultural production, including harvesting, but not to a worker in other on-farm jobs, such as picking fruit.

Agricultural work varies widely depending on context, degree of mechanization and crop. In countries like the United States where there is a declining population of American citizens working on farms — temporary or itinerant skilled labor from outside the country is recruited for labor-intensive crops like vegetables and fruits.



Sudanese farmer reviews cantaloupe production, south of Khartoum Agricultural labor is often the first community affected by the human health impacts of environmental issues related to agriculture, such as health effects of pesticides or exposure to other health challenges such as valley fever. To address these environmental concerns, immigration challenges and marginal working conditions, many labor rights, economic justice and environmental justice movements have been organized or supported by farmworkers.

Irrigation

Irrigation (also referred to as watering) is the practice of applying controlled amounts of water to land to help grow crops, landscape plants, and lawns. Irrigation has been a key aspect of agriculture for over 5,000 years and has been developed by many cultures around the world. Irrigation helps to grow crops, maintain landscapes, and revegetate disturbed soils in dry areas and during times of below-average rainfall. In addition to these uses, irrigation is also employed to protect crops from frost,[22] suppress weed growth in grain fields, and prevent soil consolidation. It is also used to cool livestock, reduce dust, dispose of sewage, and support mining operations. Drainage, which involves the removal of surface and sub-surface water from a given location, is often studied in conjunction with irrigation.

There are several methods of irrigation that differ in how water is supplied to plants. Surface irrigation, also known as gravity irrigation, is the oldest form of irrigation and has been in use for thousands of years. In sprinkler irrigation, water is piped to one or more central locations within the field and distributed by overhead high-pressure water devices. Micro-irrigation is a system that distributes water under low pressure through a piped network and applies it as a small discharge to each plant. Micro-

irrigation uses less pressure and water flow than sprinkler irrigation. Drip irrigation delivers water directly to the root zone of plants. Subirrigation has been used in field crops in areas with high water tables for many years. It involves artificially raising the water table to moisten the soil below the root zone of plants.

Irrigation water can come from groundwater (extracted from springs or by using wells), from surface water (withdrawn from rivers, lakes or reservoirs) or from non-conventional sources like treated wastewater, desalinated water, drainage water, or fog collection. Irrigation can be supplementary to rainfall, which is common in many parts of the world as rainfed agriculture, or it can be full irrigation, where crops rarely rely on any contribution from rainfall. Full irrigation is less common and only occurs in arid landscapes with very low rainfall or when crops are grown in semi-arid areas outside of rainy seasons.

The environmental effects of irrigation relate to the changes in quantity and quality of soil and water as a result of irrigation and the subsequent effects on natural and social conditions in river basins and downstream of an irrigation scheme. The effects stem from the altered hydrological conditions caused by the installation and operation of the irrigation scheme. Amongst some of these problems is depletion of underground aquifers through overdrafting. Soil can be over-irrigated due to poor distribution uniformity or management wastes water, chemicals, and may lead to water pollution. Over-irrigation can cause deep drainage from rising water tables that can lead to problems of irrigation salinity requiring watertable control by some form of subsurface land drainage.

Seeds

Seed companies produce and sell seeds for flowers, fruits and vegetables to commercial growers and amateur gardeners. The production of seed is a multibillion-dollar business, which uses growing facilities and growing locations worldwide. While most of the seed is produced by large specialist growers, large amounts are also produced by small growers that produce only one to a few crop types. The larger companies supply seed both to commercial resellers and wholesalers. The resellers and wholesalers sell to vegetable and fruit growers, and to companies who package seed into packets and sell them on to the amateur gardener.

Most seed companies or resellers that sell to retail produce a catalog, for seed to be sown the following spring, that is generally published during early winter. These catalogs are eagerly awaited by the amateur gardener, as during winter months there is little that can be done in the garden so this time can be spent planning the following year's gardening. The largest collection of nursery and seed trade catalogs in the U.S. is held at the National Agricultural Library where the earliest catalogs date from the late 18th century, with most published from the 1890s to the present.[23]

Seed companies produce a huge range of seeds from highly developed F1 hybrids to open pollinated wild species. They have extensive research facilities to produce plants with genetic materials that result in improved uniformity and appeal. These qualities might include disease resistance, higher yields, dwarf habit and vibrant or new colors. These improvements are often closely guarded to protect them from being utilized by other producers, thus plant cultivars are often sold under the company's own name and protected by international laws from being grown for seed production by others. Along with the growth in the allotment movement, and the increasing popularity of gardening, there have emerged many small independent seed companies. Many of these are active in seed conservation and encouraging diversity. They often offer organic and open pollinated varieties of seeds as opposed to hybrids. Many of these varieties are heirloom varieties. The use of old varieties maintains diversity in the horticultural gene pool. It may be more appropriate for amateur gardeners to use older (heirloom) varieties as the modern seed types are often the same as those grown by commercial producers, and so

characteristics which are useful to them (e.g. vegetables ripening at the same time) may be unsuited to home growing.

DISCUSSION

Fertilizers

A fertilizer (American English) or fertiliser (British English) is any material of natural or synthetic origin that is applied to soil or to plant tissues to supply plant nutrients. Fertilizers may be distinct from liming materials or other non-nutrient soil amendments. Many sources of fertilizer exist, both natural and industrially produced.[24] For most modern agricultural practices, fertilization focuses on three main macro nutrients: nitrogen (N), phosphorus (P), and potassium (K) with occasional addition of supplements like rock flour for micronutrients. Farmers apply these fertilizers in a variety of ways: through dry or pelletized or liquid application processes, using large agricultural equipment or hand-tool methods.

Historically fertilization came from natural or organic sources: compost, animal manure, human manure, harvested minerals, crop rotations and byproducts of human-nature industries (i.e. fish processing waste, or bloodmeal from animal slaughter). However, starting in the 19th century, after innovations in plant nutrition, an agricultural industry developed around synthetically created fertilizers. This transition was important in transforming the global food system, allowing for larger-scale industrial agriculture with large crop yields.

Nitrogen-fixing chemical processes, such as the Haber process invented at the beginning of the 20th century, and amplified by production capacity created during World War II, led to a boom in using nitrogen fertilizers.[25] In the latter half of the 20th century, increased use of nitrogen fertilizers (800% increase between 1961 and 2019) has been a crucial component of the increased productivity of conventional food systems (more than 30% per capita) as part of the so-called "Green Revolution".[26]

The use of artificial and industrially-applied fertilizers has caused environmental consequences such as water pollution and eutrophication due to nutritional runoff; carbon and other emissions from fertilizer production and mining; and contamination and pollution of soil. Various sustainable-agriculture practices can be implemented to reduce the adverse environmental effects of fertilizer and pesticide use as well as other environmental damage caused by industrial agriculture.

Production Sector

Farming

A farm (also called an agricultural holding) is an area of land that is devoted primarily to agricultural processes with the primary objective of producing food and other crops; it is the basic facility in food production.[27] The name is used for specialized units such as arable farms, vegetable farms, fruit farms, dairy, pig and poultry farms, and land used for the production of natural fiber, biofuel, and other commodities. It includes ranches, feedlots, orchards, plantations and estates, smallholdings, and hobby farms, and includes the farmhouse and agricultural buildings as well as the land. In modern times, the term has been extended so as to include such industrial operations as wind farms and fish farms, both of which can operate on land or at sea.

There are about 570 million farms in the world, most of which are small and family-operated. Small farms with a land area of fewer than 2 hectares operate on about 12% of the world's agricultural land, and family farms comprise about 75% of the world's agricultural land.[28]

Modern farms in developed countries are highly mechanized. In the United States, livestock may be raised on range, land and finished in feedlots, and the mechanization of crop production has brought about a great decrease in the number of agricultural workers needed. In Europe, traditional family farms are giving way to larger production units. In Australia, some farms are very large because the land is unable to support a high stocking density of livestock because of climatic conditions. In less developed countries, small farms are the norm, and the majority of rural residents are subsistence farmers, feeding their families and selling any surplus products in the local market. Acres can hold the crops.

Farm Mechanization

An agricultural and biosystems engineer fixing an agricultural robot

Agricultural engineering, also known as agricultural and biosystems engineering, is the field of study and application of engineering science and designs principles for agriculture purposes, combining the various disciplines of mechanical, civil, electrical, food science, environmental, software, and chemical engineering to improve the efficiency of farms and agribusiness enterprises[29] as well as to ensure sustainability of natural and renewable resources.[30]

An agricultural engineer is an engineer with an agriculture background. Agricultural engineers make the engineering designs and plans in an agricultural project, usually in partnership with an agriculturist who is more proficient in farming and agricultural science.

Processing Sector

Primary Processing

Primary food processing turns agricultural products, such as raw wheat kernels or livestock, into something that can eventually be eaten. This category includes ingredients that are produced by ancient processes such as drying, threshing, winnowing and milling grain, shelling nuts, and butchering animals for meat.[31][32] It also includes deboning and cutting meat, freezing and smoking fish and meat, extracting and filtering oils, canning food, preserving food through food irradiation, and candling eggs, as well as homogenizing and pasteurizing milk.[32][33][34]

Contamination and spoilage problems in primary food processing can lead to significant public health threats, as the resulting foods are used so widely.[32] However, many forms of processing contribute to improved food safety and longer shelf life before the food spoils.[33] Commercial food processing uses control systems such as hazard analysis and critical control points (HACCP) and failure mode and effects analysis (FMEA) to reduce the risk of harm.[32]

Secondary Processing

Baking bread is an example of secondary food processing. Secondary food processing is the everyday process of creating food from ingredients that are ready to use. Baking bread, regardless of whether it is made at home, in a small bakery, or in a large factory, is an example of secondary food processing.[32] Fermenting fish and making wine, beer, and other alcoholic products are traditional forms of secondary food processing.[34] Sausages are a common form of secondary processed meat, formed by comminution (grinding) of meat that has already undergone primary processing.[35] Most of the secondary food processing methods known to humankind are commonly described as cooking methods.

Marketing Sector

Market display in China Agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumer. These services involve the planning, organizing, directing and

handling of agricultural produce in such a way as to satisfy farmers, intermediaries and consumers. Numerous interconnected activities are involved in doing this, such as planning production, growing and harvesting, grading, packing and packaging, transport, storage, agro- and food processing, provision of market information, distribution, advertising and sale. Effectively, the term encompasses the entire range of supply chain operations for agricultural products, whether conducted through ad hoc sales or through a more integrated chain, such as one involving contract farming.

Farmers' Market

A farmers' market (or farmers market according to the AP stylebook,[36][37] also farmer's market in the Cambridge Dictionary[38][39]) is a physical retail marketplace intended to sell foods directly by farmers to consumers. Farmers' markets may be indoors or outdoors and typically consist of booths, tables or stands where farmers sell their produce, live animals and plants, and sometimes prepared foods and beverages. Farmers' markets exist in many countries worldwide and reflect the local culture and economy. The size of the market may be just a few stalls or it may be as large as several city blocks. Due to their nature, they tend to be less rigidly regulated than retail produce shops.[40]

They are distinguished from public markets, which are generally housed in permanent structures, open year-round, and offer a variety of non-farmer/non-producer vendors, packaged foods and non-food products.[41][42]

Support Sector

Education

Agricultural extension is the application of scientific research and new knowledge to agricultural practices through farmer education. The field of 'extension' now encompasses a wider range of communication and learning activities organized for rural people by educators from different disciplines, including agriculture, agricultural marketing, health, and business studies.

Extension practitioners can be found throughout the world, usually working for government agencies. They are represented by several professional organizations, networks and extension journals.

Agricultural extension agencies in developing countries receive large amounts of support from international development organizations such as the World Bank and the Food and Agriculture Organization of the United Nations.

Cooperatives

An agricultural cooperative, also known as a farmers' co-op, is a producer cooperative in which farmers pool their resources in certain areas of activity.

A broad typology of agricultural cooperatives distinguishes between agricultural service cooperatives, which provide various services to their individually-farming members, and agricultural production cooperatives in which production resources (land, machinery) are pooled and members farm jointly.[43]

Examples of agricultural production cooperatives include collective farms in former socialist countries, the kibbutzim in Israel, collectively-governed community shared agriculture, Longo Mai cooperatives[44] and Nicaraguan production co-operatives.[45]

The default meaning of "agricultural cooperative" in English is usually an agricultural service cooperative, the numerically dominant form in the world. There are two primary types of agricultural service cooperatives: supply cooperatives and marketing cooperatives. Supply cooperatives supply their members with inputs for agricultural production, including seeds, fertilizers, fuel, and machinery services. Marketing cooperatives are established by farmers to undertake transportation, packaging,

pricing, distribution, sales and promotion of farm products (both crop and livestock). Farmers also widely rely on credit cooperatives as a source of financing for both working capital and investments.

RESULTS AND CONCLUSIONS

Governments

The Food and Agriculture Organization of the United Nations (FAO)[46] is a specialized agency of the United Nations that leads international efforts to defeat hunger and improve nutrition and food security. Its Latin motto, *fiat panis*, translates to "let there be bread". It was founded on 16 October 1945.[47]

The FAO comprises 195 members, including 194 countries and the European Union. Its headquarters is in Rome, Italy, and it maintains regional and field offices worldwide, operating in over 130 countries.[48] It helps governments and development agencies coordinate their activities to improve and develop agriculture, forestry, fisheries, and land and water resources. It also conducts research, provides technical assistance to projects, operates educational and training programs, and collects agricultural output, production, and development data.[48]

The FAO is governed by a biennial conference representing each member country and the European Union, which elects a 49-member executive council.[49] The Director-General, as of 2019 Qu Dongyu of China, serves as the chief administrative officer.[50] Various committees govern matters such as finance, programs, agriculture, and fisheries.[51]

Professionals

An agriculturist, agriculturalist, agrologist, or agronomist (abbreviated as agr.), is a professional in the science, practice, and management of agriculture and agribusiness.[52] It is a regulated profession in Canada, India, the Philippines, the United States, and the European Union. Other names used to designate the profession include agricultural scientist, agricultural manager, agricultural planner, agriculture researcher, or agriculture policy maker.

The primary role of agriculturists are in leading agricultural projects and programs, usually in agribusiness planning or research for the benefit of farms, food, and agribusiness-related organizations.[53] Agriculturists usually are designated in the government as public agriculturists serving as agriculture policymakers or technical advisors for policy making.[54] Agriculturists can also provide technical advice for farmers and farm workers such as in making crop calendars and workflows to optimize farm production, tracing agricultural market channels,[55] prescribing fertilizers and pesticides to avoid misuse,[56] and in aligning for organic accreditation[57] or the national agricultural quality standards.[58]

Preparation of technical engineering designs and construction for agriculture meanwhile are reserved for agricultural engineers.[59] Agriculturists may pursue environmental planning and focus on agricultural and rural planning.[60]

Studies and Reports

Studies of agribusiness often come from the academic fields of agricultural economics and management studies, sometimes called agribusiness management.[2] To promote more development of food economies, many government agencies support the research and publication of economic studies and reports exploring agribusiness and agribusiness practices. Some of these studies are on foods produced for export and are derived from agencies focused on food exports. These agencies include the Foreign Agricultural Service (FAS) of the U.S. Department of Agriculture, Agriculture and Agri-Food Canada (AAFC), Austrade, and New Zealand Trade and Enterprise (NZTE).

The Federation of International Trade Associations publishes studies and reports by FAS and AAFC, as well as other non-governmental organizations on its website.[61]

In their book *A Concept of Agribusiness*,[8] Ray Goldberg and John Davis provided a rigorous economic framework for the field. They traced a complex value-added chain that begins with the farmer's purchase of seed and livestock and ends with a product fit for the consumer's table. Agribusiness boundary expansion is driven by a variety of transaction costs.

As concern over global warming intensifies, biofuels derived from crops are gaining increased public and scientific attention. This is driven by factors such as oil price spikes, the need for increased energy security, concern over greenhouse gas emissions from fossil fuels, and support from government subsidies. In Europe and in the US, increased research and production of biofuels have been mandated by law.[62]

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