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Issues Related to Marketing and Extension for Sustainable Agricultural Production in Turkey

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Abstract: Sustainable agriculture, although a difficult term to define operationally, includes the practice of low input agricultural production technologies. An important condition to adopt these technologies is the access to markets for low input agricultural products. Ability to market these products at profitable prices would provide incentives for farmers to adopt the necessary methods. Contract farming is considered to be an effective means to introduce new production technologies to the farmers by providing assurance on prices and markets for agricultural products. Public extension agencies in developing countries may therefore be concerned to direct their efforts to introduce contract farming models to rural areas, and to encourage private firms to disseminate information on the appropriate production methods.

Türkiye’de Tarımsal Üretimde Sürdürülebilirliğin Sağlanması İçin Pazarlama ve Yayım ile İlgili Bazı Noktalar

Özet: Tanımı güç bir terim olmakla birlikte sürdürülebilir tarım, girdi kullanımının düşük olduğu bir tarım tekniğidir. Düşük girdi kullanımını içeren teknolojilerin benimsenmesi, sözkonusu teknoloji ile üretilen ürünlerin pazarlama olanaklarına bağlıdır. Sözleşmeli tarım, uygun pazarlama ve fiyat olanakları yaratması bakımından, tarımda yeni üretim teknolojilerinin tanıtılmasına olanak tanıyan bir araçtır. Gelişmekte olan ülkelerdeki kamu yayım kurumları, sözleşmeli tarım modelini kırsal bölgelerde tanıtılması görevini üstlenerek, tarım ürünlerinin sürdürülebilir yöntemlerle üretilmesine olanak tanıyan yeni tarım teknolojilerinin tanıtılmasına yardımcı olabilir.

Introduction

Sustainability, despite considerable definitional problems, has become an important concept in economic development. The protection of natural resources, and actions to maintaining the quality of the environment are increasingly important public concerns (1). The concept of sustainability is perceived differently by different people. The ecologists, for example, emphasize the preservation of the status and function of the ecological system. The economists, on the other hand, emphasize the importance of maintaining and improving human standards of living, in which natural resources are only part of the requirements (2).

The World Commission of Environment and Development defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations” (3). This definition is subject to some criticisms such as intergenerational fairness, the substitutability of natural and other resources, and the carrying capacity of the natural ecosystem (2). These criticisms cause an

ambiguity in the definition of sustainable development. The major emphasis of sustainable development, however, is to maintain the environmental quality and natural resources in the process of economic development through the managed use of resources.

Sustainable development presumably involves the adoption of sustainable agricultural systems. Such systems contain a wide range of agricultural practices, such as organic farming, integrated pest management and low-input production systems. The adoption of sustainable agricultural technologies raise the issue of how to introduce such technologies to local farmers and is thus a concern to Extension Service. This is closely related to the equally important issue of marketing opportunities for new agricultural products. Ability to market agricultural products at fair prices is an important consideration for individual farmers when deciding to adopt any production method.

The aim of this paper is to discuss the product marketing issues associated with the adoption of sustainable agricultural systems and to point out the role

of extension for sustainable agricultural production in Turkey.

Sustainable Agricultural Systems

Throughout this century, agriculture has relied on the use of purchased agrochemical inputs, such as fertilizers and pesticides, and has achieved remarkable increase in yield as a result. Externality problems of such agricultural methods, however, has caused public concern and led research organizations to seek for methods which minimize the perceived public concern for the environment or other related issues. Alternatives to high input agriculture involve a wide range production methods. They also involve different farming and production philosophies. Low input agriculture is any farming system that reduces the direct or indirect use of purchased energy or chemical-based inputs. It is also a form of production which may be thought to be more in harmony with nature. There are reduced ties to the industrial economy and a greater concern for the diversity of biological systems and species at, in fact, ways in which these can be used with advantage in the production systems (4).

An important question to consider is choice of agricultural systems that are most suitable for an area and the country as a whole. A comprehensive analysis is needed to examine the social and economic impacts of various agricultural systems to the country, such as low input agriculture and organic agriculture.

The aim of this paper is not to discuss the suitability and sustainability of various agricultural systems in Turkey, though distinctions should be made between different systems for a clearer understanding of sustainable agricultural development. Priorities to specific regions and crops to introduce sustainable agricultural production methods may be needed. This is an important question since the environmental problems of farming practices may pose more serious problems in some regions and particular crops than the others. In the context of this paper, we are concerned with production methods that rely less on chemical based or synthetic purchased inputs.

The Extent of Chemical Input Use in Turkish Agriculture

Access to and use of yield increasing inputs, such as pesticides and fertilizers have increased over the last thirty years of the planned development process in Turkey (5). However, increase in the use of fertilizers and

pesticides have not been homogenous across the country. Some regions are characterized by extensive and sometimes excessive input use while some farmers in some regions do not have funds to have access to yield increasing inputs.

More than half of the fertilizer use in Turkey is for grain production. Another major use of fertilizers in Turkey is associated with the production of industrial crops such as cotton and tobacco. It has been projected that the Southeastern Anatolia Project (GAP) will cause an increase in the need to use fertilizer once irrigation starts in the region.

Soil conditions across the country require an extensive use of nitrogen based fertilizers, which make up approximately 60% of total fertilizers use in Turkey. Phosphate is the second most needed element. Inefficient utilization of nitrogen and phosphate based fertilizers is an important cause of environmental pollution. An example of an environmental problem is from the Niğde-Mizli basin in Central Anatolia. There has been reports of nitrate residues in groundwater which cause health risks in drinking water. There are also reports of nitrate residues in the Mediterranean coast due to extensive fertilizer use in greenhouse production (6).

The situation with pesticide use in Turkey is not much different from fertilizer use. Although pesticide use in Turkey is lower on average than in most of the developed countries, there exist significant differences across the regions. For example, 30% of total pesticide use in Turkey is in the Mediterranean region where intensive production methods are practiced. On the other hand, the share of Southeastern Anatolia region in total pesticide use is only 8% (7). Another characteristic of pesticide use in Turkey is related to existing pest management methods. Pest management practices in Turkey mostly depend on calendar spraying which emphasizes pesticide application as a sole method of managing pests. A study conducted in the Mediterranean region reveals that integrated pest management (IPM) is used only in 20% of the greenhouses (7). Another study shows that over 90% of grape producers in Manisa region practice calendar spraying and sometimes use higher amounts of pesticides than recommended by the Ministry of Agriculture (8).

Excessive pesticide and fertilizer use particularly in the Aegean and Mediterranean coast, calls for correcting action. As to pesticide use, IPM program should primarily be targeted in the Mediterranean and Aegean regions where pesticides are extensively used. Concerning fertilizer use, low input agricultural production methods should be searched for grain production in Central

Anatolia region where fertilizer use is an important cause of groundwater pollution.

Issues Related to Agricultural Marketing of Sustainable Agricultural Products

The way that a product is marketed is determined by its production and consumption characteristics. Low input agricultural products are usually characterized by higher production costs due to higher labor requirements and lower yields in comparison to agricultural products that are produced with normal inputs. Higher production costs and lower yields cause the product supply curve to be lower than the supply curve of conventional products. With demand unchanged, a lower product supply curve causes relatively higher prices for sustainable agricultural products when compared to the prices of conventional agricultural products. Another production characteristic of some low input agricultural products is their cosmetic quality. Particularly in fresh fruit and vegetable markets, the consumers are faced with a tradeoff between low cosmetic quality and reduced chemical input use.

On the demand side, a common characteristic of the consumers of low input agricultural products is their willingness to pay higher prices, which may be for product attributes such as food safety, environmental protection and cleanliness.

Currently, there does not exist a domestic market that is particularly established for low input agricultural products in Turkey. There are, however, producers who underuse chemical based inputs due to poverty and lack of liquid assets. There also exists some local marketing of fresh produce with little or no pesticide or fertilizer use. Such produce is usually marketed directly from producer to the consumer and is not subject to any type of certification. Selling low input agricultural products in domestic markets does not assure that the product is environmentally friendly unless there is a certification process. This means that the products should be certified as "*Low Input*" by third parties such as private firms under the control of the government.

Although a domestic market does not exist for sustainable agricultural products in Turkey, the market for these products in Europe is growing. European based firms and some domestic exporting firms, through contracts, provide incentives to Turkish farmers to use low input agricultural methods, particularly in the production of dry fruits and nuts. The exporting firms certify the products to assure that the production technology is environmentally friendly and purchase the

produce from the farmers with a price premium. To expand this production in developing countries, it is necessary to create local markets for these products. If domestic markets as well as foreign markets exist, adoption rates of low input production methods are likely to increase.

An important domestic marketing issue is the assurance of a continuous flow of environmentally friendly agricultural products to the market. Only then can a stable and profitable marketing for low input agricultural products be established in Turkey. Another factor for successful sustainable production is the support available from agricultural extension (9).

Issues Related to Agricultural Extension for Sustainable Agricultural Production

Extension agencies can play an important role in introducing low input production methods in developing countries, though their past experiences have often tended to emphasize *technology transfer* to rural areas. This is *research centered, supply dominated, top-down and provided as a public service*. Current practices of extension in many countries are mostly directed to increasing yields and the intensive use of inputs. Low input agriculture is a newer concept for extension and research institutions in the implementation stage of new production techniques. To introduce other methods in developing countries, extension and research institutions would need to direct their effort to more sustainable production techniques, backed-up by consistent and systematic extension policies (9).

Transformation from high to low input production systems requires changes in some extension concepts. These are, farmer participation, indigenous knowledge, rural women as "environment managers", extension methods and approaches, in-service training programs and the content of extension advice (10).

As an institution it appears that public extension is still important for developing countries to persuade farmers to adopt low input production techniques (9). The reasons are the ineffectiveness of farmer organizations in technology transfer to rural areas, and the relative newness of the concept of low input agriculture production to the private sector.

Contract Farming (CF) would be an effective tool for public extension to introduce low input agricultural methods to rural people, by eliminating the uncertainties in marketing of such agricultural products. To assure profits, farmers would want to know the available

markets and the prices they will receive. By eliminating these market uncertainties, CF would provide the necessary opportunities and incentives to farmers (11; 12; 13; 14; 15).

Contract farming is not a new model for Turkish farmers, particularly in the western part of Turkey. This model is effectively practiced by private firms in the production of tomatoes for paste and vegetables for canning. The result of a research project conducted in the Ege Region shows that CF increases the adoption rates of information and technology packages (16). However, implementation of CF in Turkey emphasizes on increasing the quality and quantity of agricultural products rather than introducing environmentally friendly production methods. In addition to existing CF practices, the model would be useful for the adoption of low input production techniques.

Conclusion

Agriculture will continue to be vital for future generations. The capability of existing soils to continue production is an essential pre condition. Food security and

the profitability of production methods are today's concerns. Existing production technologies are expected to provide sufficient food supply for the growing world population as well as profitable prices to the agricultural producers. Sustaining the quality of the environment, however, makes very particular demands on the agricultural practices used.

Public extension service in developing countries can play an important role, especially in a situation where there is ineffectiveness in the farmer organizations in technology transfer to rural areas. The role of the extension agencies would be to identify situations and farmers where low input farming could be profitable. The farmers also need to be convinced that achieving such production systems for future generations is as crucial as increasing today's yields and profits. Extension agencies can use CF as an effective tool to disseminate relevant information model for farmers by reducing the uncertainties in marketing and pricing of agricultural products. The value of CF has been demonstrated and documented by different researchers in previous research results.

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