

## Barriers to Establishment of Good Agricultural Practices (GAP) Technologies to Sustainable of Citrus Gardens in Mazandaran Province

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### ABSTRACT

The main purpose of this study was to investigate the barriers to application of Good Agricultural Practices (GAPs) technologies to sustainable of Citrus Gardens in Mazandaran Province. Population consisted of all citrus farmers in the villages of 12 county of Mazandaran province, a sample of 290 farmers was selected by using proportional random sampling method among 122361 citrus Orchardman. Data were collected by means of a questionnaire. Validity of questionnaire was determined through sustainable agriculture experts of Mazandaran County and some faculty members at University of Tehran, Department of Agricultural Extension and Education, Agricultural Management and Development. Cronbach's alpha was used to estimate the reliability (More than 0.7). The reliability was found to be acceptable. The results of factor analysis showed that technical-informational barriers, infrastructure-institutional barriers, support-economical barriers, psychological barriers, management - control barriers were the five barriers to application of Good Agricultural Practices (GAP) technologies to sustainable of Citrus Gardens. These factors explained 68.27 percent of the total variance.

**Keywords:** Good Agricultural Practices (GAP), Barriers, Citrus Gardens, Sustainable agriculture, Establishment of technologies.

### EXTENDED ABSTRACT

**Objectives:** Efforts to increase agricultural production have put undue pressure on agricultural production resources, most notably by the use of inappropriate technologies or the misuse of modern technology. Production of health and safety in the food supply chain has also been hazarded by the risks posed by non-compliance or improper use of technology, and environmental degradation and economic problems and social inequalities among farmers have increased. In this regard Good Agriculture Practices (GAP) refer to an approach that leads to sustainable processes at the farm level and, ultimately, contributes to ensuring the health and quality of agricultural food and non-food products. The main purpose of this study was to investigate the barriers to application of Good Agricultural Practices (GAPs) technologies to sustainable of Citrus Gardens in Mazandaran Province and behavioral goals including factor analysis of barriers and challenges of using GAP technologies for sustainable orchard gardens; and provides executive mechanisms for removing barriers to the use of GAP technologies for the sustainability of citrus orchards should be considered.

**Methods:** Population consisted of all citrus farmers in the villages of 12 county of Mazandaran province, a sample of 290 farmers was selected by using proportional random sampling method among 122361 citrus Orchardman. Data were collected by means of a questionnaire. Validity of

questionnaire was determined through sustainable agriculture experts of Mazandaran County and some faculty members at University of Tehran, Department of Agricultural Extension and Education, Agricultural Management and Development. Cronbach's alpha was used to estimate the reliability (More than 0.7). The reliability was found to be acceptable. Research in terms of practical purpose, in terms of data collection, descriptive-correlation, and in terms of the degree of monitoring and degree of control of variables, is also a type of field research. Statistical methods of research are divided into two parts: descriptive statistics and analytical (inferential) statistics. Data were analyzed using Statistical Package for the Social Sciences (SPSS). Descriptive and inferential statistics were used to analyze the collected data. Descriptive statistics included frequency, percentage, mean, and standard deviation and so forth and inferential statistics included factor analysis.

**Results:** According to research results in prioritizing barriers to the use of GAP among gardeners "Reducing access to extensional and educational services such as FFS", "Lack of manpower specialized in GAP" and "Lack of knowledge and information needed to use GAP", because of having the lowest extent of coefficient of variation respectively have allocated priorities from first to third. Against "Expensive cost of using GAP (labor cost and biological materials ...)", "Lack of government support in the payment of government loans and facilities for the use of GAP" and "Lack of support factors in product exports and guaranteed purchases" with the highest extent of coefficient of variation have allocated last priorities to themselves. The results of factor analysis showed that technical- informational barriers, infrastructure- institutional barriers, support - economic barriers, psychological barriers, management - control barriers were the five barriers to application of Good Agricultural Practices (GAP) technologies to sustainable of Citrus Gardens. These factors explained 68.27 percent of the total variance.

**Discussion:** These results provide an opportunity for managers of agricultural policies and extension agents to provide the necessary conditions for the sustainability of gardens by removing barriers to adoption. Extensional programs are one of the most important sources of knowledge and information for farmers in all fields, including the establishment of GAP technologies. Pay more attention to identifying real needs, prioritization of farmers' needs with the facilitation of agricultural extension and research experts, available information management, appropriate educational and news activities, possibility of more farmers using information resources and communication channels through display farms, Farmer Fields Schools (FFS), creating a national information network to provide educational services and farmers' awareness of standard input distribution centers in collaboration with agricultural service centers and consulting services Companies and plant clinics should be considered to reduce barriers adoption GAP.