

**THE SPREAD OF GOOD AGRICULTURAL PRACTICE (GLOBAL G.A.P.)
AND ITS EDUCATIONAL USE IN JAPAN**

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ABSTRACT

In the world, sustainable agriculture is necessary to answer food demand due to future population increase. There is GAP as a concrete idea for that. Also in Japan, it is useful as a tool for sustainable agricultural production, but besides that, producers introducing GAP are increasing for agricultural exports and safe food supply. This paper introduces case examples of Japan's GAP (GLOBAL GAP) introduction and summarize the effect and the approach of Tokyo University of Agriculture on its farm, and discusses about the spread of GAP in the future.

INTRODUCTION

As it is well known, the world's population is increasing explosively and is said to be 9.6 billion in 2050(UN DESA). It is estimated that it is necessary to increase food production by 70% compared with the present to meet the food demand of this growing population (FAO). Agriculture, forestry, and fishery produce this food and raw materials, but this paper focuses on only agriculture to clarify the discussion.

Looked out over the world, there are many areas where agricultural water is depleted in the process of developing agricultural production to meet food demand. In 2030, it is also predicted that over 50% of the world's population will fall into water and food shortages (Antequera, 2015).

On the other hand, looking back to Japan, the situation differs significantly from overseas. Although there is abundant water, however, due to the aging of farmers and the severity of agricultural work, the Japanese agricultural sector has been tapering uneasily such as few young people are will to work in the agricultural sector.

To satisfy the increasing demand for food, it is necessary to develop economically, socially and environmentally sustainable agricultural production around the world, and various efforts are being made. One particular approach is GAP (Good Agricultural Practice). This article focus on GAP,

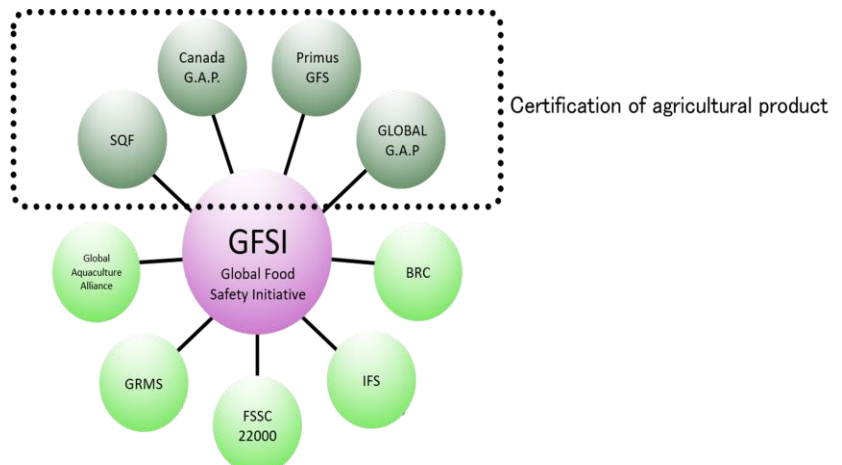
especially GLOBAL GAP which has the most mainstream spread in the world, organizes the development of GLOBAL GAP in Japan and discuss the future of Japanese agriculture by using GLOBALGAP.

OVERVIEW OF GLOBAL GAP

GFSI (Global Food Safety Initiative), organized by more than 400 retailers and food manufacturers operating in 70 countries around the world, is the world's largest food industry group. This organization examines how the food industry can supply safe food to consumers and sets up a mechanism to judge and approve the reliability of the certification system related to food safety. This GFSI is an arbitrary organization established under TCGF (The Consumer Goods Forum).

The idea of certification standard approved by GFSI is summarized into three points: (1) HACCP sanitation management, (2) ISO 9001 level quality control, and (3) food defense. HACCP sanitation management is to try to grasp the crisis area of food and to promote hygiene management from the perspective of the three major hazards of food. The hygiene management means control of physical hazards (foreign body contamination), biohazard (bacterial contamination), chemical pollution (residual agricultural chemicals). ISO 9001 level quality control aims to improve the management system, formulate rules for maintaining quality, and record strict compliance with rules. Food defense means to prevent malicious artifacts, producers must comply with the law, thoroughly educate employees about moral, corporate philosophy and occupational safety, and conduct traceability of their products. There are currently nine authentication standards approved by GFSI (Fig. 1). Among them, there are four standards for agricultural products, the most major standard of which is GLOBAL G.A.P. It is a concept of agricultural business management to produce sustainable and safe agricultural products, and is composed of three pillars: (1) food safety, (2) occupational safety, and (3) environmental conservation. Food safety involves hygienic food production. Occupational safety is the improvement of working conditions, while environment conservation is the establishment of sustainable agriculture.

The idea of GFSI is to realize a state where security can be secured in the process of raw material production and the process of processing and to connect the safety of the whole food chain by connecting the information. For example, if GLOBALG.A.P is in place at the agricultural site and FSSC 22000 is established at the processing phase, it establishes food safety throughout the whole continuum. It leads to social benefits of food safety.



GFSI accepts only 4 third party certification of agricultural production(farming) which are SQF, Canada G.A.P., Primus GFS and Global G.A.P.

Fig. 1. Global food safety standard GFSI's certification scheme

DEVELOPMENT OF GLOBAL GAP IN JAPAN

There are many GAP systems in Japan, but none have received GFSI approval. Therefore, for producers to develop globally, one of the GFSI approved standards must be taken. Conversely, if the producer gets GLOBAL GAP, it will acquire the international level certification so that producers will be ready for global expansion. As of the end of 2015, the number of producers received GLOBAL GAP was about 200, but as of the end of September 2016, it grew almost doubled to 396 (FOOD+). This increase is thought to be due to information that GLOBAL GAP may be included as a food procurement requirement for the Tokyo Olympic Games and the Paralympic Games in 2020, although the Japanese government may be affected by the promotion of agricultural exports.

Regarding the regional characteristics of the number of certificates of GLOBAL GAP in Japan, it accounts for 52% of the number of certifications in two prefectures, Shizuoka and Hokkaido. Shizuoka Prefecture is related to the fact that the prefecture is the production area of tea, tea processing enterprises have acquired FSSC 22000 and required GFSI approval scheme. Hokkaido is the biggest producing area of Japan such as potatoes, onions, carrots, pumpkins, etc., and the shipping destination supermarket is seeking the GLOBAL GAP standard, so many producers are working on getting GLOBALGAP certification.

Some producers have acquired GLOBALGAP as export-oriented producers, but most of the producers who are exporting, however, sell to suppliers that do not need GLOBAL GAP certification. For this reason, GLOBALGAP is not currently used for exporting agricultural products in Japan.

A CASE OF MATUMOTO FARM IN KUMAMOTO PREFECTURE

Here, I would like to touch on the actual conditions of agricultural corporations that have obtained GLOBAL GAP certification. It is a Matsumoto farm in Mashiki-machi, Kumamoto Prefecture. It is an excellent producer who acquired third the certification in Japan. It is an agricultural corporation that performs annual cultivation with a production area of 50 ha, mainly root vegetables. With the opportunity to recommend EUREP GAP¹ from supplier supermarket, they studied about GAP by themselves and spent about two years to obtain certification. Initially, Matsumoto Farm was devoted to achieving the GAP checklist, and the fundamental understanding of GAP was weak. However, while updating the certification, the essence begins to appear. For example, because visualization of farm management was aimed at by thorough recording, the impossibility in management became apparent, and it began to do more efficient work than before. By proceeding with organizing, the things to look for is reduced, and it becomes possible to use time efficiently.

Matsumoto Farm also improved management quality by promoting discussion between managers and staff, establishing a mechanism to take countermeasures against the request by making a record of the discussion. As a result, the quality of agricultural products improved, leading to an increase in sales. Also, Matsumoto Farm has various effects such as being evaluated by financial institutions at the time of loan by the risk countermeasure. On the sales side, priority is given from the supermarket that has recommended GAP acquisition, and though it is a small amount for export, stable transactions can be continued. Although it did not raise the price by acquiring GLOBAL GAP, contract sales at a fixed price became possible, thereby enabling stable management to be realized. In spite of the effect of obtaining GLOBAL GAP at Matsumoto Farm was explained above, it is not intended to acquire GLOBAL GAP, but rather to use GLOBALGAP as a tool for management development, to increase its management while updating certification, this is the essential meaning of acquiring GLOBAL GAP.

THE EFFECT OF GLOBAL GAP FOR EDUCATION

In Japan, there are stereotypes that GLOBAL GAP acquisition is possible for advanced producers, but difficult for general producers. In particular, much administrative staff and agricultural cooperative staff have this idea. As a result, there are cases where farmers who do not know what GAP is doing not to tackle. However, if you check with a farmer who has already acquired GLOBAL GAP, you can hear the voice that there is a sense of cost burden, but it is not difficult to acquire. Many cases are becoming disagreeable because they do not even challenge to obtain certification from the belief that it is impossible for themselves because it is difficult. I would like Japanese agricultural producers to

¹ GLOBAL GAP was developed from EURO GAP

challenge to acquire GLOBAL GAP, but if there is a place to learn GLOBAL GAP at the educational site of the young producer, they can challenge GLOBAL GAP after the end of education. Currently, as an educational institution, GLOBAL GAP certification has been acquired at Goshogawara Agricultural and Forestry High School in Aomori Prefecture, Miyazaki University, Niigata Prefectural Agricultural College and Saitama Prefectural Agricultural College and has expanded to other schools. In fact, Tokyo University of Agriculture is working on getting GLOBAL GAP certification and experienced its certification review on Yam production at university farm. I would like to explain the educational effect of GAP from the experience of Tokyo University of Agriculture.

Initially, they aimed to acquire GLOBAL GAP for the supply of food to the Tokyo Olympic Games and the Paralympic Games in 2020 and started as a request for action on the farm site. On the scene, there are professors in charge, technical staff, technical trainees, and they started to study GLOBAL GAP. They were confused, for example, something that had to be rectified by what they had done as custom until now, but as they worked over time, the essence of GAP began to appear, and by working on GAP, they began to practice using GLOBAL GAP as a tool to improve the worksite, and they were promoted to organize everything including the warehouse. In addition, the instructor gives a new task of practicing risk assessment to the technical trainee in the Yam cultivation, so that the technical trainee can review the work of the farm, they could learn deeply about GAP through the work. The GAP judge told them that "Risk assessment was well done, for the first time in the examination, the degree of comprehension to GAP was high and excellent results".

In this way, by working on GAP not only in the classroom but also on the farm, it is possible to understand its essence. In the future, to expand this GAP in Japan as well as in the world, educational institutions will take the initiative to introduce them, and methods to teach to students through practical training will lead to further popularization.

CONCLUSION

In the world, sustainable agriculture is necessary to answer food demand due to future population increase. There is GAP as a concrete idea for that, and there are some that GSFI can recognize as authentication, such as GLOBAL GAP. Also in Japan, it is useful as a tool for sustainable agricultural production, but besides that, producers introducing GAP are increasing for agricultural exports and safe food supply. By understanding the philosophy itself rather than filling in items, this GAP has the effect of improving the management structure itself of the producer who introduced it year by year. Therefore, GAP should be introduced for future agriculture in Japan. In the introduction, by considering the next generation at the educational institution, it is expected to further spread the GAP

in Japan by doing the process of actually acquiring it and updating it with the student.

ACKNOWLEDGMENTS

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