



Smart Farm Policy in Korea

Byoung-Hoon Lee
Assistant Professor
Kangwon National University
Department of Agriculture Resource Economics

INTRODUCTION

The Smart Farm government policy started with the rapid opening of the overseas market with trading economies such as the US and the EU has progressed rapidly. In the agricultural sector, since 2004, R & D for agricultural and ICT convergence has expanded and begun to pursue various advanced agricultural technology policies. During the period of 2004 and 2009, the government carried out the 'u-Farm' leading business and successfully operated 25 models. Through this project, Korea achieved visible results that confirmed the possibility of integrating agricultural technology and IT technology such as implementation of optimum growth conditions using sensor and traceability system using electronic tags.

The government's smart farm policy direction is as follows: First, it will promote the facility modernization project and smart farm promotion, expanding the foundation for the introduction of ICT convergence facilities and easing the investment burden on farmers. Second, it aims to encourage farmers to voluntarily introduce smart farms by objectively analyzing and promoting productivity improvements and reductions in labor force resulting from the adoption of smart farms. Third, localize and standardize the core parts and technologies of smart farm such as related equipment and growth management, and make and distribute Korean smart farm model that suits our agricultural environment and conditions. Fourth, farmers and related personnel will have the ability to utilize ICT and specialize in small items to support 100% of the benefits of smart farms in the field.

STATUS OF SMART FARM SUPPLY

The government is pushing for the extension of smart farms by designating them as a national priority in order to foster facility farming and state-of-the-art science farming in response to climate change. It expanded its policy support to spread smart farms. Budget for Smart Farm Supply increased from 22 billion won in 2014 to 76.1 billion won in 2018.

Starting with supply business in 2014, Smart Farms by type were distributed at 4,010 ha of greenhouses (40% of the modernized greenhouses) and 801 households of smart livestock barn (3.4% of the full-time farmers) in 2017.

Table 1. Performance and goal for supplying smart farm

		Unit: ha, house holds									
Farm	Year	2014	2015	2016	2017	2018	2019	2020	2012	2022	
Greenhouse	Accumulated Area	60	769	1,912	4,010	4,510	5,017	5,621	6,263	7,000	
	Area of year	-	709	1,143	2,098	510	507	604	642	737	
Livestock barn	Accumulated Households	23	181	430	801	1,350	2,150	3,150	4,350	5,750	
	Household of year	-	158	249	371	600	725	1,000	1,200	1,400	

Source: Korea Agency of Education, Promotion and Information Service in Food, Agriculture, Forestry and Fisheries

For greenhouse horticulture section, the government supported the supply of ICT equipment and equipment in connection with facility modernization (2014), Smart Greenhouse Expansion (2016), and building foundation of smart garden complex (2017 onwards). As Smart Farm performance is improving, the supply of Smart Farms is rapidly increasing with vegetables such as paprika and tomato. And the government is exploring and promoting the performance of smart farms and success models, and is operating an on-site support center.

For livestock section, the government supported the supply of ICT equipment such as automatic water supply and feed machines through ICT convergence project, expansion and rebuilding of the smart livestock barns, and expert consulting since 2014. The number of farm houses and target animals has expanded rapidly over the past four years. The target animals were pig (2014), poultry (2015), Hanwoo & dairy (2016), and ducks & deer (2017).

South Korean Government is pushing for standardization and localization of ICT equipment and materials, development of growth, and development of management technologies for each item as a priority task of R&D. Korea's R&D budget have increased from 5.4 billion won in 2014 to 33.6 billion won in 2018.

As the government takes the expansion of smart farm as a national priority task, the government aims to distribute smart farms to 5,750 livestock farms (25% of the full-time

farmers) and 7,000 ha of the greenhouse horticulture (70% of facility modernized area). The government strives to create an industry ecosystem in order to expand the collection of big data through the spread of smart farms and expand the utilization of research institutions and private companies by preparing quality control measures for these data.

Table 2. Performance and goal for supplying smart farm per item

	Unit: household					
	2017	2018	2019	2020	2021	2022
Tomato	785	824	865	909	954	1,002
Paprika	575	587	601	614	627	642
Strawberry	600	720	864	1,037	1,244	1,493
Cucumber	201	231	266	306	352	404
Watermelon	600	660	726	799	878	966
Korean melon	400	460	529	608	700	805
Flower	839	965	1,110	1,276	1,467	1,688
Total	4,000	4,447	4,961	5,549	6,222	7,000
Increase rate		11.2	11.6	11.9	12.1	12.5

Source: Korea Agency of Education, Promotion and Information Service in Food, Agriculture, Forestry and Fisheries

Table 3. Smart Farm big data collection targets and status

Unit: household, number									
Tomato	Paprika	Strawberry	Korean melon	Cucumber	Mum	Eggplant	Pig	Dairy	Total
75	61	54	11	10	10	22	15	5	243
Information		Environment	Growth and Development		Control	Management		Total	
Number of the accumulated data		530,036,970	423,700		286,895,787	1,046		817,357,503	

Source: Korea Agency of Education, Promotion and Information Service in Food, Agriculture, Forestry and Fisheries

CONCLUSION

As of October 2018, about 822 million data on nine items were collected from 243 farms, and the government aims to expand the data collection to 800 farms until 2022. Korea Agency of Education, Promotion and Information Service in Food, Agriculture, Forestry and Fisheries (EPIS) provides the information on its smart farm portal service so that other smart farm farms which have similar item, facility, and weather conditions may utilize it to increase its productivity.

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