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10th Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific

Gender Mainstreaming in Sustainable Agricultural Mechanization

28-30 November 2023; Shanghai, China

Women-friendly agricultural mechanization in South Korea

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Korean Agriculture

- **Intensification of rural labor shortages due to declining & aging populations**
 - In 10 years, it is predicted that timely farming will be disrupted without the use of farming machinery ('18, KREI)
 - * Farm population: ('18) 2,315 thousand → ('30p) 180
 - * Aging rate (65+): ('18) 44.8% → ('30p) 51.3
 - * Women farmers: ('18) 51% → ('25) 53
 - * Women labor share: ('18) 53.9% → ('25) 62

Increased need for mechanization due to the shortage of rural labor force

Agricultural mechanization in South Korea

- Rice paddy farming is at the stage of completion ('22, 99.3%)
- Farming mechanization of sowing, planting, and harvesting operations is insufficient
 - * Mechanization rate of field agriculture : ('10) 50. 1% → ('22) 63.3 → ('26) 77.5
 - * Increased by about 13 percentage points in the last 12 years

Crops	Plowing and harrowing	Seeding transplantation	Vinyl Coating	Pest control	Harvesting	Average
Field Farming	99.8	12.6	76.9	94.8	32.4	63.3

Barriers to mechanization in field agriculture



Variety of cultivation styles

- ▷ **Variety of cultivation styles by region**
 - * ex. Garlic clove width: 300 cm (Uiseong), 150 (Namhae-South Sea), 210 (Muan)

Weak purchasing power

- ▷ **Small-scale cultivation and farming households**
 - * Less than 0.3 ha per farmer ('22): Garlic 87.3%, onion 77.4%, potatoes 94.5

Variety of cultivation area

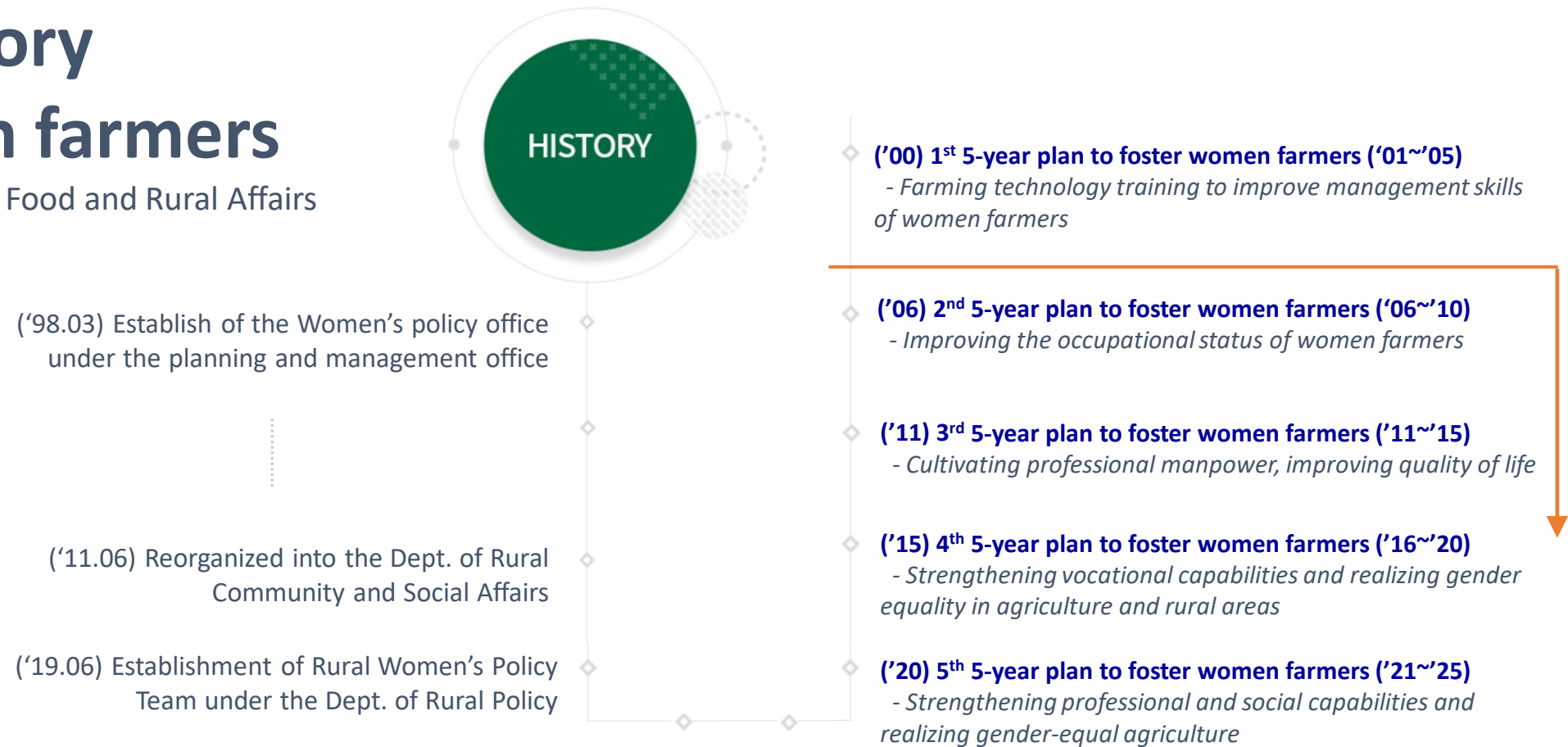
- ▷ **Sloping, varied soil composition**
 - * 2/3 of the total field area has a **slope of 7% or higher**
 - * **Soil composition:** Silty clay loam 30.8%, loam 35.3

Low-volume and multiple items

- ▷ **Poor profitability of small businesses,**
 - * Difficulty investing in R&D
 - * Out of a total of 858 farm equipment companies (1 large, 3 medium, 854 small)

Policy history for women farmers

Ministry of Agriculture, Food and Rural Affairs
(MAFRA)



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Agricultural machinery for women workers



Women-friendly agricultural machinery

Women-friendly agricultural machinery (by MAFRA)

Agricultural machinery and convenient equipment that were manufactured to be **convenient for use by women farmers, taking women's physical conditions into account**, or that are frequently used by women farmers

(ex. Ride-on management machines, powered rice planter, small tractors)





Women-friendly agricultural machinery

❖ Direction of R&D

- Mechanization of agricultural work

- Small, lightweight : self-propelled small equipment for walking or riding
- Easy to operate : simple shifting or operation
- Easy to apply to field farming use of various work tools that are easy to attach and detach

- Advanced development of convenience equipment

- ergonomic convenience device



Women-friendly agricultural machinery

- ▷ **27 types of women-friendly agricultural machinery, 6,878 units distributed over the past five years (2018~2022)**
 - automated agricultural machinery, easy for women to handle

Year	2018	2019	2020	2021	2022	합계
No. of ag. machine	6	4	5	7	5	27
No. of supplies	1,454	340	3,775	869	440	6,878
R&D budget (unit: million \$)	1.36	1.55	1.34	1.03	0.81	6.09



Women-friendly agricultural machinery



Riding self-propelled garlic collector



Ginseng seeding machine



Ride-on type onion meal maker



Strawberry cart



Green corn harvester



Radish planter



Perilla seed threshing



Development of convenience equipment

- ▷ 11 types of comfort and protective equipment for women's health and safety

Year	2018	2019	2020	2021	2022	합계
No. of ag. machine	2	1	2	2	4	11



Development of convenience equipment



Walking support cart



Personal protective equipment



Pesticide control
clothing



Handle rotating scissors



Agricultural work shoes



Rail mobile work chair



Training program for women workers

Theoretical education and practical training on agricultural machinery for women farmers

- 26,754 people (central 54, regional 26,700) * up to Aug. 2023

Training for women farmers on driving and operating agricultural machinery and its safety rules

- (central) training on agricultural machinery use for women farmer (9 sessions, 90 people)
- (regional) provincial agricultural research and extension services-centered training course for women farmers (8 sessions 200 people)










Support policy for women farmers

PROJECT purchasing and using of women-friendly agricultural machinery

- 🎯 To improve labor efficiency and work environment of women farmers
- Support women farmers to use agricultural machinery more easily
- Since 2015 continued, National vs. local government budget 50:50
- Rental and distribution of women-friendly equipment through agricultural machinery rental offices

PROJECT farming convenience equipment support

- 🎯 To reduce the burden of agricultural work on women farmers and improve work efficiency by distributing ergonomic convenience equipment

Item	Figure	Description
Farm branch		Height adjustable, movable, easy use for women farmers
Pepper harvest cart		Wheels for easy movement, sun-shade
Rechargeable sprayer		Rechargeable and easy to transport product
Rechargeable cart		Rechargeable and easy to load and carry items
Rechargeable weeder		Rechargeable, light-weight and easy to use
Multi-purpose (automatic) seeder		Easy to use and sow various types of seeds
Rechargeable automatic pruning shears		Rechargeable, light-weight, easy to use

Conclusion

Strengthen the development of agricultural machinery

can easily and comfortably operate by incorporating ergonomic design and cutting-edge automation technology

Expand training on the use and safety of agricultural machinery for women farmers

Increase R&D budget to expand field crop mechanization

upgrading customized field agricultural machinery
(2023) 9,796 thousand dollars → (2024) 16,967

Thank you



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