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Yamagata University
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Learning the Importance of Life, Nature and the Environment through Agronomy

Faculty of Agriculture

Going Out into the Field to Develop Agricultural Technologies that Will Actually Be Utilized by Farm Producers

[Introduction] The aging of the population engaged in farming in Japan is progressing, with those aged 65 or older accounting for 60% of the core persons mainly engaged in farming. Because of this, there is a need for the improvement of operational efficiency through the adoption of highly-efficient and labor-saving farming machinery. Furthermore, because the gross income of farm producers is on a downward trend due to escalating fertilizer prices and decreasing rice prices, there is now a pressing need to introduce technologies for the improvement of productivity or to convert rice paddies to fields that produce high-revenue horticultural crops.

[Efforts to Develop Farming Technologies that Will Actually Be Utilized] In my field of specialization, which is agricultural machinery, the establishment of technologies that incorporate robotics and ICT is being promoted at a rapid pace in response. However, I feel that such technologies do not necessarily match the requests of those who are on site at farms. I believe that agricultural technologies should be developed after obtaining an accurate understanding of the challenges that exist at the production site, and that there should be the collaboration of a diverse range of technologies including machinery development, cultivation techniques, fertilization management, disease and pest management, and administrative aspects.

Up to now, research was being carried out on direct-seeding cultivation techniques, in which rice seedlings are scattered directly into rice paddies, and the establishment of seeding machines and cultivation technologies. Furthermore, in terms of paddy usage, development was carried out on labor-saving cultivation technologies for growing vegetables in fields that had been converted from rice paddies as well as various labor-saving machinery and equipment. In particular, we established new operational technology in regards to welsh onions through the university's Agricultural Machinery and Process Engineering Laboratory's involvement for over ten years in field cultivation and machinery development in cooperation with a publicly-run experiment station and agricultural machinery manufacturer. The adoption of this technology at production sites may soon be realized in the near future.

[In Order to Gain Trust] It is when they are actually utilized at production sites that agricultural machinery and farming technologies exhibit their significance. Going forward, we will make use of fields in northwestern Yamagata Prefecture to promote the development of agricultural technologies that will be utilized and considered useful by farm producers.

Associate Professor

Mitsuhiko Katahira

Verification is being carried out on the effect of avoiding moisture damage by way of technology for simultaneous ridging and row making for edamame in fields converted from rice paddies

We will improve the yieldability of welsh onions by developing an effective operational technique utilizing a fertilizer-applicator ditcher

We will improve the operational precision of simultaneous wet-field-rice soil puddling and sowing, and enhance onsite appropriateness