

Econometric Analysis of the Introduction of Direct Seeding of Sugar Beet

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Summary

In Japan, transplanting culture of sugar beet has been widespread since the 1960s, but in order to establish a supply system for domestic sugar that can respond to changing demand and international competition, direct seeding is expected to become more popular due to advantages in terms of savings in labor and material costs. However, the unit yield by direct seeding is estimated to be lower than that by transplanting culture. Therefore, the merit and demerit of direct seeding have both positive and negative impacts on the income of sugar beet farmers. Because of the multiple effects of direct seeding, this paper examines the total effect of the introduction of direct seeding on consumers, taxpayers, the market and farmers. Additionally, this paper analyzes the total effect corresponding to various rates of introduction, as the total effect depends upon the annual introduction rate.

Such empirical analysis shows that the public burden can be reduced by 7 - 9 % if the percentage of direct seeding is incrementally increased by 2.5% annually over the next 20 years. In this case, in order to prevent a significant negative impact on the average income of farmers, each farmer is required to expand their planted area by 10 acres annually. This rate of scale expansion is about the same rate as in the 1970s and 1980s. In order to reduce the public burden even further, it is important to reduce the unit cost of sugar beet farming by scale expansion and of beet sugar manufacturing.

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