Market-oriented agriculture in Palestine <Part 4>

Production and use of compost

Soil in the Jordan River Rift Valley is deficient in organic matters due to the high temperature and dry conditions. This makes it especially important to ensure effective utilization of crop residue and livestock manure as part of resource management and material recycling. In this project, we established a compost production center aiming to promote compost production using locally obtainable materials, as joint activities of farmer's groups. In addition, we implemented activities to examine and improve the quality of produced compost, and the farm experimentations related to compost application.

Considering the difficulties farmers face in obtaining raw materials and farmer groups' interests, the project established three compost production centers in the target areas. At each center, farmer groups were given the responsibility to construct a building and establish electricity and water supply so as to nurture a sense of ownership. The project provided compost making machinery, as well as harvesters, trollies and crushers that are used for collection and transportation of crop residue and livestock manure.

Compost production center

To improve farmer groups' technical capacity to produce high quality compost, we conducted technical training targeting stakeholders such as cooperative members and extension workers. Main purposes of the training were for the participants to: (1) understand importance of compost production; (2) attain basic knowledge and technologies related to compost; and (3) obtain compost production techniques. Furthermore, to evaluate the quality of compost produced at each center, we sampled and analyzed the compost with positive results indicating good quality. However, it became apparent that there were some major differences between analysis results of various testing organizations. Therefore, the project facilitated standardization of analytical methods and developed a standard format to indicate results within an acceptable range. This made it easier to understand the characteristics of produced compost and points for improvement in the production process.

Although use of compost is increasing among farmers, it is still limited. There are some reasons why many farmers are reluctant to use compost. One such reason is that many farmers do not understand the importance of compost. Another reason is that there is no guidance on the optimal amount of compost for different crops and soil types. Hence the project attempted to generate information on advantages of compost over other organic materials and reasonable amounts to use, through various cultivation experimentations. The results were as follows.

Collection of compost samples

· With eggplant cultivation, plots with compost (livestock manure and crop residue) had a larger yield than the plot with chicken manure sold from shops.

· With green pepper cultivation, plots with chicken manure from shops had a higher yield than the plot with compost and the plot with livestock manure.

·With tomato cultivation, the yield was highest in the plot with 25 bags/1,000 m² (1 bag = 25 liters) compost. In the plot with 100 bags/1,000 m² compost, the soil salinity tends to become high.

Although we could not obtain conclusive results on the superiority of compost and right amount for application, we have been able to obtain a variety of new knowledge that will be useful for effective implementation of future verification experiments.

Field experiments on the effects of compost application

Compost has soil improvement effect and accompanying increase in yield through long-term use. There is a lot of valuable works the compost production centers can do to grow and nurture a better future by running the centers with a long-term view.