

selects the one "best" combination of crop and livestock activities. Often there are other, quite different, combinations that yield nearly as much net revenue. One example of an interesting (yet less than optimal) solution is given as Model IC in Table 5.14. Here sugarcane has been arbitrarily reduced to a maximum of 10,000 acres. Though this combination produces less annual net revenue than IA, it represents a less drastic change from the present production pattern and is therefore a more feasible possibility. Cereal requirements are provided through wheat production; protein supplies are increased through the production of meat and milk. Yet even in Model IC the increase in annual net revenue over the present is significant, and the orientation towards the market is unmistakable.

A final word should be said about milk production. In most of the solutions for Khairpur, milk production appears to be a very profitable alternative. Because of its great potential for solving diet and income problems, it is discussed further in Chapter 6.

Conclusions: The programming analysis for the area commanded by Khairpur Feeder West indicates that changes in traditional cropping patterns can increase significantly the value of agricultural output. Even with current resource supplies and farming practices, changes in the cropping pattern could result in up to 50 percent increases in productivity. This comes about primarily by shifting the orientation of agriculture from low-valued subsistence crops, to the market crops of vegetables, sugarcane, milk, etc. This further implies a great need for transportation, marketing and processing facilities.

In addition, the programming method provides a new approach to the planning of water use. Previous methods have calculated the monthly water use of particular crops, have combined these into rotations, and have then checked to see if there was sufficient water. Linear programming, on the other hand, allows any number of alternatives to be considered. This represents a considerable advance, although it places even more weight on the input - output and price coefficients. With improved data, the accuracy and usefulness of the models will increase.

The third result given by these models is the inadequacy of the current practice of planning in terms of a pre - determined cropping intensity. These models show that with the same water supplies, the possible acreage intensity can vary greatly.

Finally, the results of the program show the benefits from additional irrigation water. The total supply of irrigation water is inadequate to cultivate all