

Improved Seeds: Improved seed accounts for 10–15 percent of increased yields of crops. Its value has been established and ryots have taken to the use of improved seeds. It is considered to be the most important achievement and the multiplication and distribution of improved seeds, occupies the highest place in the activities of the Agricultural Department in the Community Development and National Extension Service blocks. To augment the local sources of supply of improved seeds State Seed farms have been established under the supervision of the Department in the block areas. Seeds from these are further multiplied in the Village Seed Farms for distribution to the cultivators. The position now with regard to the supply of improved seeds is more favourable.

Control of Pests and Diseases: This is one of the most important of all the items of Agricultural Extension Service. All developments and efforts, in other lines however successful they are, will be of no use if this problem is not solved by the Department and properly attended to by the cultivators. Hence special attention is paid by the department to educate the ryots to adopt all preventive and control measure against pests and diseases. Suitable pesticides and fungicides are stocked in the Agricultural Depots and distributed to the ryots. They are supplied at concession rates in pest declared areas. Co-operative Societies and big land owners are advised to own their own sprayers and dusters. There is a separate staff to attend to calls and give technical advice in addition to the staff in the block.

Thus the object of the Community Development and National Extension Service to increase the food production which is the basis for a higher economic and social life in villages, has been achieved to a great extent by the Agricultural Department in the Community Development and National Extension Service.

<https://doi.org/10.29321/MAJ.10.A04088>

New Irrigation Techniques in the U. S. S. R.

by
M. PAVLOV

During the next seven years, the land under irrigation in the Soviet Union will be increased by 1.9 million hectares (a hectare is equal to 2.5 acres). This increase alone is almost twice the irrigated area of a country like Iran. But the development of irrigation in the U. S. S. R. is not limited to this alone. The plan calls for

watering nearly 80 million hectares of pasture lands in desert and semi-desert zones. At the same time drainage in areas with superfluous moisture will be carried out on 3.6 million hectares of swampy and marshy land.

The irrigation and land melioration programme of the Soviet Union is being carried out, in such a way as makes it possible to introduce advanced methods of work, progressive technology, and mechanization of production processes.

The following can serve as an example of how this is being put into practice.

Co-operation of Advanced Science and Practice : State Farm No. 4 occupies 10,400 hectares of newly-developed virgin land in the Hungry Steppe of Kazakhstan. The project of Soviet scientists and melioration specialists envisages the creation of a technically perfect system of irrigation here to facilitate the achievement of high economic indices with minimum expenditure of labour.

In drawing up the project, the configuration of the ground and soil conditions have been taken fully into account. The state farm's area has been divided into five sections, each of which will have its own irrigation pattern. In order to cut down wastage of water due to filtration, beds of large canals will be compressed with ground compressing machines, and will also be covered with concrete. With the same aim in view, a closed distributive irrigation network on a considerable tract is to be replaced by an open one. Special asbestos and cement pipes will be laid. They will be placed at a distance of 600 metres from one another, and hydrants, installed 120 metres apart, will supply water to temporary ditches. In one of the sections, where the relief prevents the flow of water by gravity, the pipeline system will be reinforced by a pumping station. It will guarantee the needed water pressure.

The technique of watering farm crops is also being changed. Spray irrigation, with machines produced in Soviet factories, is being introduced on a considerable part of the land. The spray machines will be of both stationery and mobile (tractor) types. From the results already obtained, it is clear that spray irrigation increases labour productivity several times, as compared with ordinary furrow irrigation.

The remaining part of the state farm will be irrigated from open concrete-covered canals, but with the aid of portable pipes which are briefly described below.

Mechanization of Watering : In the Soviet Union, furrow irrigation is usually employed for cotton and other row crops. The backward and old flooding irrigation method has been abandoned. At present one man, depending on the relief of the land, can irrigate from 0.5 to 1.2 hectares of crop land a day. Such labour productivity can hardly satisfy any large farm. The Soviet specialists have therefore introduced, in various irrigation areas of the country, a new method involving the use of flexible, portable pipes made from plastics or cotton fabrics, impregnated in an appropriate solution. Such pipes take the place of temporary irrigation ditches and distributive furrows. The pipes have openings from which water is supplied to the furrows.

Special water installations have been set up, which include soft pipes 350-440 millimetres in diameter and up to 1,000 metres in length for delivering the water. To these are attached pipes, 190-350 millimetres in diameter and 200-350 metres in length, with frequent outlets.

Of importance, too, is the fact that devices have been worked out for tractors, which have made it possible to mechanize the laying of thin pipes. A set consisting of three sections of soft pipes can irrigate 24 hectares in 24 hours, consuming 200 litres of water per second.

The state farm plans to make extensive use of the soft pipes in supplying moisture to its crops. It has been estimated that the introduction of technically perfect irrigation systems will make it possible to increase the efficiency of the irrigation network from 0.63 to 0.90. Economy of water, as compared with the existing irrigation technique, will amount to 330 cubic metres per hectare.

It should also be noted that in this state farm, as in other irrigated areas of the U. S. S. R. a drainage system is being introduced for draining subsoil waters and preventing soil salinity. The total length of the closed drains in the state farm will come to some 223 kilometres. Besides, the project envisages the development of 253 kilometres of shelter belts. They will fringe fields, canals and roads helping to prevent the evaporation of moisture.

Our experience shows that the new irrigation method described above makes it possible to increase the irrigated area by 5 to 6 times inasmuch as it eliminates the necessity of cutting irrigation ditches. It yields also a big economy in water-consumption and increases labour productivity by 3 to 5 times. There is no doubt that the new method will help raise the technical level of Soviet agriculture.

(From the Information Officer, U. S. S. R. Embassy in India)