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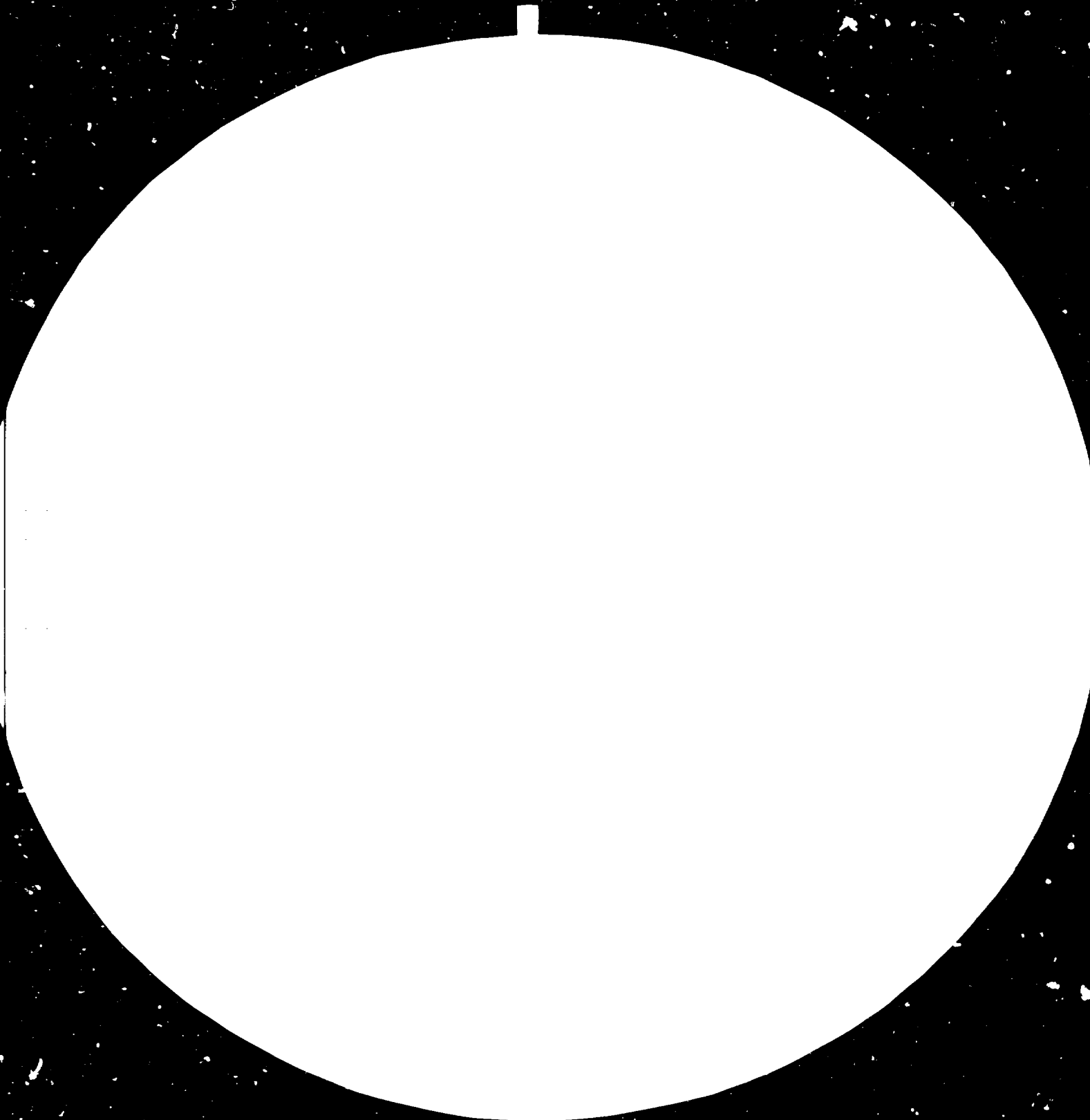
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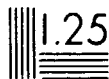
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COUNTRY SUMMARY
ON THE AGRICULTURAL MACHINERY INDUSTRY
OF ROMANIA *

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* The opinions expressed in this document are those of the authors and do not necessarily reflect those of the UNIDO Secretariat. This document has been translated from an unedited original.

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I. AGRICULTURAL MACHINERY NEEDS AND DEMAND

1. Agricultural machinery and implements needs and demand

Romania meets its requirements for tractors and most of the equipment used with them, combine harvesters for cereal crops and some animal-drawn implements and handtools from its own production.

I. Our need for hand or animal-drawn implements is relatively small, as they are intended primarily for hilly areas, where farms are small, and which are hence unsuitable for tractor-operated machinery.

II. Earth-working machinery (ploughs, harrows, cultivators), small machines for spreading fertilizer and animal-drawn equipment are generally used in vineyards and orchards in hilly areas where it is impossible to use tractors. Only a few hundred of these machines are needed every year

III. Small tractors with various attachments are generally specialized for mechanized work in vineyards, orchards and plantations, fields of vegetables and sloping terrain.

Requirements for tractors of this kind with their attachments for farm work amount to some 2,500-3,000 units.

IV. Large tractors, of 80 and 180 HP, are mainly found on State farms and co-operatives.

Up to 1985, our tractor pool will amount to 140,000 units, with an annual supply of some 15,000 tractors to replace those which are unserviceable and to make up the pool. The related attachments are obtained at the same time as the tractors.

Within five years from now, through the use of 100-180 HP combine harvesters for cereal crops and fodder, the harvesting of our basic agricultural products will be fully mechanized.

2. Estimated demand and present usage

In recent years, farms have been provided with high-powered tractors and highly productive agricultural machinery, and this trend will be still more marked in the years ahead. The use of highly efficient combines will be increasingly important, since they raise labour productivity and reduce fuel consumption.

Farm work is carried out by tractor and farm machinery stations, at rates which vary according to the productivity of the soil. The State bears part of the cost in order to help co-operative farms to carry out their agricultural work.

The main objectives for achieving high production are intensive use of tractors and carrying out of agricultural work in the technically optimum periods. The tractors and agricultural machinery made in Romania meet the needs and demands for the application of modern agricultural techniques.

Before series production is begun, tractors and agricultural machinery are tested on the farm, at specialized institutes, under normal working conditions.

On an experimental basis, machines are being tried out for harvesting tomatoes and other vegetables for industrial processing.

3. Manufacture and imports

Romania manufactures a broad range of farm equipment, implements, tractors and machinery for crops, livestock, vines, orchards, plantations and vegetables, hothouses and other purposes - all of it produced in series to meet our domestic needs and even for export.

3.1.; 3.2. - Categories I and II - Implements and intermediate machinery

Mass-produced equipment includes hand tools, sprayers which a workman carries on his back and operates by hand or with their own motors, ploughs, harrows, mowing-machines, harvesters, cultivators, animal-drawn or mechanical sprinklers.

3.3. Categories III and IV - Powered machinery, tractors, specialized equipment, self-propelled machines

Romania produces the following equipment in these categories:

Power mowers for slopes,

Self-propelled mowers,

Power pumps for irrigation, self-propelled equipment with frontal or swivelling traverse,

Machinery and equipment for stockraising,

30, 40 and 50 HP tractors of the following different models: universal, for vegetable crops, for vineyards, wheeled and with caterpillar tread, double traction, with caterpillar tread for slopes, "Vitivol" high-clearance tractor and the complete range of appliances for these tractors for earth-working, spreading fertilizer, harvesting and sowing, machines for fodder crops and pasture-land, tractor trailers with special-purpose scoops.

56, 80, 150 and 180 HP tractors and a complete range of highly efficient machines for earth-working, spreading fertilizer, sowing, weed-killing, crop maintenance, fodder harvesting, etc. The quality of these machines is on a level with present world technology. Special attention is given to the manufacture of combines which can do several jobs at the same time.

Universal combine harvesters for harvesting cereal crops, maize grain, sunflower seeds, soya beans, rice and other cereal crops, either in fields or on slopes of up to 40°, combine harvesters for fodder crops, self-propelled windrowers operated by tractors - for fodder crops - combine harvesters for maize ears.

Only a few kinds of materials are imported for manufacture under arrangements for specialization and bilateral co-operation with various countries.

The following types of agricultural machinery are imported by Romania: harvesters for fodder crops, potatoes, beets, hemp and flax, power tractors in the 6-12 HP range, with all their attachments for earth-working, harvesting, mowing and haulage.

Romania has several enterprises which specialize in manufacturing various types of tractors. The total volume of production is some 70,000 to 75,000 tractors annually, most of them for export.

3.4. a, b - Basic facilities and ancillary industries

Romania has foundries, forges, heat-treatment plants, assembly shops, enterprises for the production, operation and repair of tractors and agricultural machinery, as well as other industries necessary for the manufacture of tractors and agricultural machinery.

3.4. c, d - What is needed is more extensive exchanges between developing countries, especially in the production of plant in limited series. We propose a greater exchange of information and the development of co-operation in the production and sale of tractors and agricultural machinery, with a view to ensuring economic production series.

4. Design and development, adaptation, testing and evaluation

With few exceptions, tractors and agricultural machinery are manufactured from our own designs. The 30-50 HP tractors and the 100 HP grain harvesters are manufactured on licence or in co-operation with foreign firms.

A national institute for scientific research, technological engineering and tractor designs establishes the types of machinery and equipment needed and prepares the working documents.

The work of these institutes could be regularly improved by wider access to the technical documentation and knowledge of similar institutes in developed countries and by more effective assistance from UNIDO specialists in technical information.

Similarly, if the institutes were more completely supplied with research equipment, testing stands, etc., this would speed up certain tasks relating to the production and use of agricultural equipment.

5. Engineering and manufacturing technology

Romania has enterprises and institutes which can carry out technical and economic studies, prepare projects, furnish technical assistance for any organizational problem, provide agricultural technology, operate, maintain and repair tractors and agricultural machinery, build and start up enterprises for manufacturing such machinery, whether in its own enterprises, on a co-operative basis or in joint ventures.

6. Repairs, maintenance and spare parts supply

Thanks to the concentration of tractors and agricultural machinery in agricultural mechanization stations, we have favourable conditions for repairing tractors and agricultural machinery and keeping them in working order.

Major repairs are made at workshops situated in all parts of the country. Each specialized workshop is assigned a zone, from which the more complicated machines are sent to it.

They also include sections for reconditioning spare parts. By concentrating repairs in specialized workshops, it is possible to use the right technology for carrying out the work in a satisfactory way.

Constant improvement of the specialized workshops could be further ensured by providing them with information and technical documentation on protective coatings, coatings with hard materials and means of checking their performance.

7. Policy, planning, strategy and co-ordination

Policy for the mechanization of agriculture is implemented through the Ministry of Agriculture and the Food Industry, which decides on the types of machines and the annual requirements for them.

Most machinery is manufactured in specialized factories, which come under the Ministry for the Machinery Construction Industry.

Machinery is tested and approved by an inter-departmental committee composed of experienced specialists from both ministries. Series production of tractors and agricultural machinery does not begin until approved by this committee, which confirms that technical and economic characteristics are on a level with those of similar machines manufactured in countries with a developed industry.

Periodically, every two years, the two ministries review the technical level of the machinery being manufactured and decide that technically obsolete machines should be replaced by others having the necessary technical and economic characteristics. Special attention is given to the manufacture of highly efficient machines with low energy consumption.

8. Interregional co-operation

Romania can offer all forms of technical assistance, manufacturing licences, projects for constructing and organizing enterprises to manufacture tractors and agricultural machinery, as well as experience, projects and assistance in the organization of all types of farms growing crops and raising livestock, and the provision of equipment, etc.

Romania can teach and train specialists for all problems connected with the manufacture, operation, maintenance and repair of tractors and agricultural machinery, and the organization of farms and agricultural enterprises, etc.

9, 10. The role of UNIDO. Specific proposals and recommendations

UNIDO can help our country by facilitating the exchange of technical documentation, information and specialists for the manufacture of tractors and agricultural machinery in the following fields:

Protection against corrosion;

Manufacture of specific parts;

Technological processes for increasing the durability of the working parts of agricultural machinery;

Use of non-conventional forms of energy in agriculture, construction of solar and wind power stations, use of geothermal waters, more efficient use of agricultural waste and biogas production techniques;

In order to improve the exchange of information between UNIDO and our country, we recommend that greater use should be made of Romanian specialists in the initial and advanced training of skilled workers in Romania, that fully-equipped model farms should be set up by our country in different parts of the world, etc.

