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SCIENTIFIC BASIS OF CROP CROPPING, SWITCHING TO ROTATION AND ADJUSTING IT

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ABSTRACT

Crop rotation is the most important part of the farming system. It is an effective measure to ensure soil fertility and increase crop productivity. This article contains information about the scientific theoretical basis of crop rotation and the necessary recommendations for switching to crop rotation and its mastery.

АННОТАЦИЯ

Севооборот является важнейшей частью системы земледелия. Это действенная мера обеспечения плодородия почвы и повышения урожайности сельскохозяйственных культур.В статье приведены сведения о научно-теоретических основах севооборота и необходимые рекомендации по переходу на севооборот и его освоению.

Keywords: Crop rotation, soil fertility, rotation period, agrotechnics, plow, field crop rotation.

INTRODUTION

Crop rotation is scientifically based rotation of agricultural crops by fields and years. It is an effective measure to ensure soil fertility and increase crop productivity. The time it takes to plant each field in a pattern defined by the order of crops is called Crop rotation. The list of groups of crops included in the rotation and the order of their rotation or the ratio of the fields occupied by the crops in rotation is called the rotation scheme. When the same crops are planted on the same plot of land without rotation (monoculture), the physical properties of the soil deteriorate, crop productivity decreases, various diseases and pests, and weeds adapted to these conditions increase (for example, shumgia in field crops, wilt in cotton, blackworm in grain crops, etc.). Crop rotation is a proven agrotechnical measure in the fight against crop diseases and pests, and in the elimination of weeds. The classification of crop rotation is based on two characteristics. One of these is the main type of agricultural products (cotton, grain, fodder, vegetables, etc.) grown in crop rotation. The second is the proportion of groups of crops that differ from each other in terms of their biological characteristics, cultivation technology, and their impact on soil fertility (legumes, cereals and technical crops, vegetable-policy crops, perennial grasses). According to the first sign, crop rotation is divided into field, fodder and special crop rotation. In field rotation, more than half of the cultivated area is devoted to the cultivation of main crops (cotton, cereals, potatoes, etc.). Fodder Even in crop rotation, more than half of the cultivated area is occupied by fodder crops. Crops that require special agrotechnics, special irrigation methods, etc. are grown in special crop rotation. They include vegetables, pulses, tobacco, rice and others. According to the second characteristic, crop rotation

is divided into types (types) according to the group of crops, the main product, the number of fields, the rotation period and other characteristics. Cotton-grain-alfalfa crop rotation; grain crops - clean plow; grain crops - grasses - hay crops; grain crops - herbs; grasses - grass-demanding crops; stubble crops - siderate crops; there are grasses - field and other species (types).

Planting of crops in a scientific basis by fields and years is called crop rotation. Such alternating planting creates conditions for controlling the amount of organic matter in the soil, effective control of weeds, plant diseases and pests, provides the granular structure of the soil, improves the nutrition and water regime, and improves the effectiveness of the applied fertilizers. increases and prevents soil degradation. Different plants accumulate different amounts of organic matter in the soil. Perennial grasses and fall cereals produce large amounts of organic residue, spring cereals less, and row crops produce very little organic residue. For example, 3-year-old alfalfa accumulates 10-11 root residues and 300-500 kg of biological matter per hectare. If a crop is not planted in the same field for more than 3 years, it is a repeated crop, if it is planted during the rotation period or more, it is a perennial crop, and the planting of the same crop in a single field for a long period of time is called monolattura.

Planting of crops in the farm at an optimal level creates a system of crop rotation, which is based on the developed structure of cultivated areas. Each crop rotation has a certain area on the farm, and the area is divided into several fields of almost equal area. For example, if corn, winter wheat, beets, barley, and oats are to be planted in the crop rotation, the area is divided into 5 fields and one of these crops is grown in each of them. Under these conditions, it takes 5 years to alternate the crops in the fields, that is, the rotation period lasts for so many years. The rotation period is the time taken to plant crops in each field according to the scheme determined by the order. In the example above, a specific crop will start replanting every field after 5 years. In this case, the rotation period is equal to the number of fields. During this period, the plan of placement of crops by years and fields is called a rotation schedule. The list of crop groups included in the rotation, the order of their rotation or the ratio of the fields occupied by the crops in the rotation is called the rotation scheme.

Types of crop rotation. The following three types of rotation are distinguished: field rotation, fodder rotation and special rotation. They, in turn. Crop rotation is divided into several types depending on the direction of cultivation, the main commodity product, the number of fields, the rotation period and other indicators. Field rotation is intended for the cultivation of technical (cotton, hemp, flax) and grain crops, as well as fodder, and fodder rotation is intended for the cultivation of coarse and succulent fodder. Crop rotation, which is organized around a livestock complex or firm and is intended for the production of succulents and green fodder, is called preform rotation. A rotation of perennial and annual grasses for haymaking and cattle grazing is called haymaking pasture rotation. Crops that require special agrotechnics and conditions (police, vegetables, tobacco, etc.) are grown in special crop rotation fields. In soils prone to decay, crop rotations are organized to protect them, field crops, fodder crops and special crop rotations are grown. In saline lands, special reclamation field rotation is used.

Cotton-beed rotation 9, 10 and 12 fields (3:7; 3:6; 1:2:7; I:4: I:4; 2:6: 1:3, etc.) schemes are used. Cotton is planted in fields 6, 7, 8, and 9 of the rotation, and fodder crops (alfalfa, corn, alfalfa-barley, or oats) are planted in fields 2 and 3. The weight of cotton is around 70-80%. According

to the 3:7 scheme, the field planted with alfalfa and barley or oats in the first year is occupied by alfalfa in the 2nd and 3rd year, and cotton is planted in the remaining 7 years. The rotation order is 3:7:1:3; It can be in the form of 2:4:1:3 and 2:4:1:2. In this case, one field is allocated for the implementation of reclamation activities. Also, in order to increase fodder and grain production, fall, winter, intermediate fodder and siderate crops (winter rye, barley, chickpea, vetch, etc.) are planted. In a 2:4:1:3 or 1:4:1:4 rotation, catch crops are planted in fields intended for corn grown for grain or silage.

Pre-farm fodder-forage rotation In such rotations, in order to satisfy the demand for fodder of livestock, the majority of the area of nutritious crops is allocated to perennial grasses, silage crops and forage crops. The organic manure collected in the livestock farm is widely used for fertilizing crops. Adoption of the nine-field rotation system in farms specialized in animal husbandry gives good results. In this case, in the 1st and 2nd fields - adding alfalfa with water grass and ryegrass; 3- in the field - autumn rye combined with oats for vika or silage; 4- field - corn for grain; 5- field - soybeans for grain, repeatedly corn; corn, vica-oat mixture, rapeseed for green food; 6- field - corn for grain; 7- field - barley for grain, repeated crops: corn, oats, vetch-oat mixture, silage and rapeseed for green food; 8- field - hashaki or semi-sweet beet; Field 9 - corn for silage, repeated crops: vikasuli mixture, greens.

Hay production-pasture rotation This type of rotation allows to produce hay, silage and use as pasture from a certain area. In this, mainly perennial and annual grasses are grown. In order to efficiently use the nutrients accumulated in the soil due to the grasses, silage and grain crops and hay crops are planted after them. On cultivated and irrigated soils with a light mechanical content, after perennial grasses, autumn rye, legumes, and rapeseed are planted. On poorly cultivated heavy soils, crops such as annual grasses and oats are grown. Perennial grasses are used for making hay in the 1st and 2nd years, and for feeding cattle in the following years.

Transition to crop rotation and its adoption. Transition to crop rotation means the creation, approval and implementation of the necessary project in the farm area. Crop rotation is organized on the basis of the farm development plan. It takes into account the issues of growing agricultural products and providing feed for livestock. They can be organized in one or more crop rotations on one farm. The most fertile soils are allocated to crops of cotton, wheat, vegetables and farm rotation. The transition to crop rotation ends with the establishment of a dedicated field. It is desirable that the fields are almost the same size (25-35 ha), in the form of a right rectangle (in some cases, a right trapezium), and the ratio of the sides is 1:2. Adoption of crop rotation means the implementation of a plan for transition to the placement of crops suitable for previous crops based on the method of crop rotation. This requires the boundaries of the crop rotation fields and the placement of crops in the fields according to the rotation pattern that corresponds to the previous crops. A plan for mastering crop rotation is developed separately for each crop rotation. Cultivation of crop rotation, in which all crops are planted each year, usually takes 2-4 years, sometimes more.

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