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Measures to Reduce the Level of Biological and Mechanical Contamination of Vegetable Crops

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Abstract: this article provides information on measures to reduce the level of biological and mechanical contamination of fruit and vegetable crops. The article also provides valuable information on spatial isolation between interbreeding cultivated and wild plants.

Keywords: isolation, spatial isolation, flowering, wild plants, mechanical pollution, biological pollution.

In order to preserve the high quality of the seeds in the generation, great attention is paid to preventing biological and mechanical pollution of the variety during their cultivation.

Prevention of biological contamination. Biological contamination can be prevented only by eliminating the possibility of alien genetics entering the cultivar population. This is achieved by isolating the crops and eliminating any alien plants that may interbreed with the crop being grown for seed. In addition to the field of seed crops, these types of foreign plants should also be destroyed in areas located at a distance that allows pollination of these crops.

The purpose of seed crop isolation is to prevent the cultivar from crossbreeding with the same crop or related crops, as well as wild forms and alien plants.For this purpose, various devices are used to separate crops, separate crops over time, and create fenced areas (separated by buildings, forests, and other barriers that prevent dust from reaching plants). Separating plants and setting up fenced plots is laborious and difficult. Therefore, methods of isolation over time and spatial isolation (separation in time and space, that is, by distance) are more common.

Isolation by time means that crops in different areas bloom at different times and the end of flowering of plants in one area does not coincide with the beginning of flowering of plants in another area. Isolation over time can be used in the area of seed production with and without replanting in radish seed production, and in the area of spring and summer sowing in cucumber seed production.

Spatial isolation is often used in vegetable seed production, that is, different varieties of seed crops are grown at a distance that does not allow them to pollinate from outside. In addition to placing the seed crops in the farm itself, it is necessary to agree with them on the cultivation of vegetables and rice crops in the farms and farms of the population.

The size of the spatial isolation, i.e. the size and the size, is determined according to the requirements of the "Guidelines for the approval of vegetable and vegetable crops, root vegetables and cabbage crops" (Table 1). It is not recommended to place biennial vegetable crops for seed next to mother plants or food crops, as these crops may contain flowering plants. If several interbreeding crops and varieties are planted in the farm, but it is not possible to separate them spatially, the work of growing the seeds of these crops is carried out throughout the year.

Spatial isolation between non-crossing seed crops of different botanical species should be 50 m in open ground and 20 m in closed ground. Spatial isolation between hybrid plots intended for obtaining hybrid seeds is the same as the distance established for conventional cultivars.

Spatial isolation for seeds of varieties and hybrids in indoor areas is defined as follows: for cucumbers - between greenhouses, as well as open greenhouses when there are no species in the ventilation holes, between the ground - 800 m, and when there are species in the holes - 50 m distance; for tomatoes - a distance of 10 m in greenhouses or each variety is separated by a film, for cauliflower and other types of cabbage grown in film tunnels - open, on the ground - 2000, on closed ground - a distance of 300 m; spatial isolation for radish is the same as in open ground.

Table 1. **Spatial isolation between interbreeding cultivated and wild plants**

Botanical family	Plant type	With which varieties and wild forms can the cultivated crop cross	Spatial isolation, m	
			Outdoors	Indoors
Brassicaceae	Beijing cabbage	These crop varieties, as well as turnip, turnips, rape varieties	200	600
	Types of cabbage	With varieties and cultivars of its own kind	2000	600
	Radish	This crop, as well as radish and wild radish varieties	2000	600
	Turnip	This crop, as well as Chinese cabbage, bryucca, turnips, varieties of rapeseed and sorghum	2000	600
	Melon, cucumber	These types of crops	1000	600
	Watermelon	These types of crops	2000	1000
	Pumpkin with hard skin	With this crop, zucchini and patisson varieties	1000	500
	Nutmeg squash with hard skin	Radish varieties	1000	500
Solanaceae	Eggplant	These types of crops	300	100
	Sweet pepper	These types of crops	300	100
	Hot pepper	With the same crop and hot pepper varieties	2000	1000
	Tomato	These types of crops	100	50
Apiacease	Carrot	With the same crop varieties, hay and wild carrots	2000	800
	Pasternak	These types of crops	2000	600
	Parsley, celery, dill	These types of crops	2000	600
Chenopodiaceae	Beetroot	The same crop varieties, with hay, sugar beet	10000	5000
	Spinach	With the same crop varieties and wild spinach	2000	600
Polygonaceae	Shovel, rovoch	Varieties of these crops, as well as cultivated and wild varieties	2000	600
Alliaceal	Types of onions	With varieties belonging to the same species, spring onions and shallots	2000	600
Poaceaep	Blue peas, beans	These types of crops	50	20
	Vegetable legumes	These types of crops	1000	500

Prevention of mechanical contamination. Mechanical pollution of seeds causes their biological pollution, so this type of pollution is being fought against. In order to protect the seeds from

mechanical pollution, all the machinery used for their harvesting, crushing, separation from unripe fruits, sorting and packaging are thoroughly cleaned from the seeds and debris collected the previous time. First, all the places where processed seeds can fall are cleaned with brushes and brooms, and the handle is blown gently. Then the mechanism is started and used for 5-10 minutes (while changing the operating mode as much as possible).

If two or more varieties of seeds are grown on the farm, the seeds of each variety are harvested and crushed separately in different machines. The seeds of each fruit variety are isolated in separate lines. If this is not possible, the seeds of different crops are threshed alternately in one threshing unit or fruit seed separating machine (or alternately placed in a seed separating machine). In addition, threshing houses, barns and open fields where the crushed seeds are temporarily stored, as well as equipment and equipment for drying seeds, are used alternately, observing measures that do not allow the seeds of one crop to mix with the seeds of another crop.

Before storing the seeds, the building where they will be poured and the corresponding containers are thoroughly cleaned of the remnants of the previously stored seeds. It is better if the dishes are new or they should be thoroughly cleaned and repaired. Great care is taken to ensure that the bags are tear-proof and pest-free during transportation, and should have two labels. If the seeds are spilled during transportation, it is not allowed to put the spilled seeds back into the bags. It is necessary to constantly monitor the cleanliness of car bodies and covers. Seeds should be stored in sealed containers. It is important to avoid mechanical contamination of the seeds at the place of sowing with the help of machinery. Before the start of planting, each seeding device of the seeder should be thoroughly cleaned with brushes, walked and ventilated so that not a single seed of the previously planted crop remains.

It is not suitable to plant different varieties of the same crop in the same plot for two years, because the seeds of the best plants spilled last year can overwinter and contaminate the new crop.

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