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## TECHNOLOGICAL ASPECTS OF St. JOHN'S WORT (*HYPERICUM PERFORATUM* L.) CULTIVATION

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Despite the widespread raw material base of St. John's wort in nature, there is an urgent need to cultivate it [4,5]. In this regard, there is already some experience in growing crops and developed the basic elements of cultivation technology.

**Predecessors.** Weed-free areas are set aside for St. John's wort plantations. The best predecessors are winter crop, as well as well-fertilized row crops. Its crops are placed in crop rotation units set aside for perennial medicinal plants [4].

**Soil preparation.** The main tillage for St. John's wort is carried out in the same way as for other row crops. Before sowing, in case of strong soil compaction, harrowing is carried out. For spring sowing pre-sowing tillage consists of harrowing in several tracks, and, if necessary, cultivation, followed by harrowing. The plots are rolled before sowing.

**Fertilization.** The results of research show that the application of mineral and organic fertilizers under the main tillage increases the yield of raw materials by 20-30%, and fertilization with mineral fertilizers in the second and third years of the growing season - by 17-25% [1]. In the absence of organic fertilizers on the farm, it is recommended to apply only double-dose mineral fertilizers. Starting from the second year of vegetation, the plants are fed with mineral fertilizers of 30 kg per ha in early spring.

**Sowing.** Sowing of St. John's wort is carried out in winter or early spring with a seeder with a row spacing of 45 cm, superficially, without seed wrapping, sowing rate of 2-3 kg per 1 ha. Sowing in winter is carried out with dry seeds, in spring - stratified. Winter crops give the best results. Seedlings appear 2-3 weeks earlier than when sowing in spring. It is established that in the conditions of Ukraine the best terms of sowing of St. John's wort are August 20-25 under the cover of winter wheat with a row spacing of 30 cm without wrapping the seeds in the soil [3].

To maintain uniformity of sowing, it is recommended to mix the seeds with ground superphosphate to 1-2 mm particles, or mix with sifted dry peat (1:10). Due

to problems during seed germination, it is proposed to sow St. John's wort under various cover crops, both agricultural and medicinal. Thus, there is experience of sowing St. John's wort under the cover of chamomile [6].

The seeds germinate in the light at a temperature of 18-25 °C for 21-25 days after sowing without stratification. Seedlings of St. John's wort in the early stages of ontogenesis develop very freely before the first frosts and develop 1-2 pairs of leaves. That is why sowing under the cover of cereals prevents weeds in both autumn and spring-summer period. During the period of harvesting cover crops, young plants take root well, form aboveground masses and by autumn some give flower shoots.

**Crop care.** Due to the fact that the plants in the first year of the growing season develop rather slowly, there is a need for careful care of crops. If sowing was carried out wide-row (45-70 cm), then inter-row tillage can be carried out before seedlings emergence. To better ensure this, sowing should be carried out with a beacon culture [7].

After the emergence of seedlings crops should be carefully cared for, to avoid weeds, not only in between rows, but also in rows. During the growing season conduct 2-3 manual weeding and 1-2 mechanized cultivations. For better overwintering plants in the first year fed with potassium and phosphorus fertilizers (PK<sub>30-45</sub>).

In the spring of the second year (as well as the third) the plantation is loosened before the beginning of regrowth with light harrows at an angle to the rows. If necessary, carry out feeding (N<sub>90</sub>P<sub>60</sub>K<sub>60</sub>). During this period, the shoots grow rapidly (up to 2-3 cm per day) and require sufficient nutrients. It is shown that foliar feeding has a positive effect not only on the amount of aboveground mass, but also its quality composition [1]. In the presence of favorable weather conditions or artificial irrigation, a second slope is possible. Before wintering, loosening between rows with chisels is carried out, which promotes better wintering conditions.

**Harvesting.** Harvesting begins during the period of mass flowering of plants, which occurs in late June-early July. Stems with flowers and buds are collected. The length of the cut of the apical part of the plants during harvesting should not exceed 30 cm. Collection is carried out with reapers.

The cut plants are dried immediately because the cut plants in the heaps become warm and black. Drying of raw materials is carried out in dryers or under cover. Dry in dryers at t° 50-60 °C [2].

After the first mowing, the plants grow under normal conditions, and after 30-40 days bloom. The harvest of the second mowing is not inferior to the first. The yield of raw materials for 2 harvests with normal grass cover in the second year of the growing season varies from 1.5 to 2.5 t/ha, in the third year - from 3.0-4.0 t/ha. Under irrigation, the plants develop well in both the first and second year of the growing season. Productivity reaches 5.2 t/ha [5].


**Seed production.** To obtain seeds, special plots are set aside or the best ones are selected for crops. Harvesting for raw materials in these areas is not carried out. The seeds ripen in the first half of September. Mown grass is transported under cover for drying, threshed with threshers or combines. Seed yield from 0.1 to 0.4 t/ha.

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