years. Loose soil area is formed under the ridge that ensures moisture keeping in the zone of the plant root system, as well as saving of irrigation water consumption.

Realization of the new tillage technology gives an opportunity to reduce 1,3–1,4 times labor inputs and fuel consumption for soil tillage for cotton-plant sowing.

DOI: http://dx.doi.org/10.20534/ESR-17-1.2-214-216

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Substantiation technological and design data сошника for crops of seeds of winter wheat in cotton row-spacing

Abstract: The article presents the theoretical study of materials on substantiation of technological and design parameters of the coulter for seeding winter wheat seed cotton in the aisles.

Keywords: knife; working-organ; wings; seed-funnel; multi-crop in the aisles; groove profile; optimum density; efficiency; productivity.

For crops of seeds of autumn wheat in cotton row-spacing offers a new working-organ (drill colter). Novelty of the technical decision is protected by patent UZ FAP 00722 [1].

Proceeding from the received patent, it was necessary to prove technological and design data of a new working-organ (fig. 1).

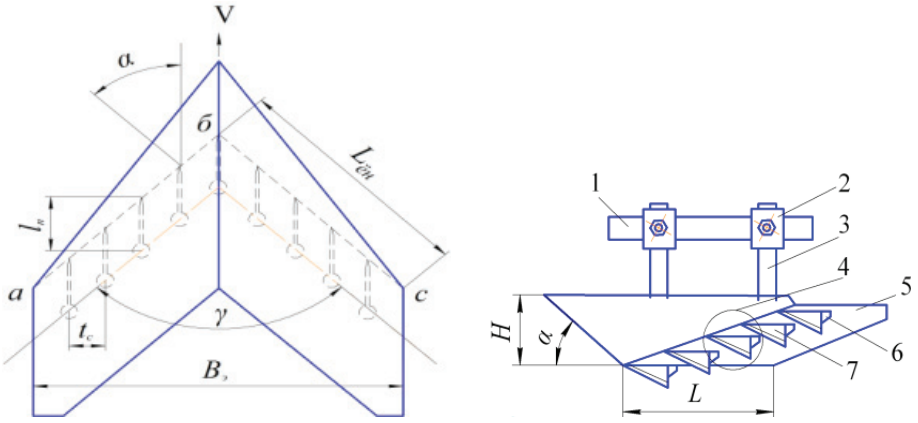

Figure 1. Schemes working-organ, a copying and forming row-spacing of cotton
1 – beam, 2 – lock, 3 – racks, 4 – and 5 – wings, 6 – seed-funnel, 7 – knife

The offered new technology and design сошника carries out multi lower case crops from 5 (for row-spacing of 60 sm) to 9 (for row-spacing of 90 sm) рядков. At the expense of formation of the new friable form of a furrow of a row-spacing the useful area of crops of seeds on 9 … 22% in comparison with strew increases in the way, is provided conditions for uniform crops and reception of amicable shoots.

For maintenance of the new, slightly condensed form of the furrow demanded uniformity of depth of crops, working-organ in the course of work should be constantly to nestle on a row-spacing surface that is the condition [2] should be met.

$$Q = Q_{опт}$$

Where: $Q_{опт}$ — Optimum reaction of soil on working-organ at which demanded uniformity of depth of crops, H is provided.

Conditions we can express the formula, in the characterizing density of soil of a row-spacing, after pass working-organ

$$\rho = \rho_o \frac{h_1}{h_1 - h_o} \quad (1)$$

Where: ρ_o — density of soil of a row-spacing after preceding processing, g/sm^3;

h_1 — depth of preceding processing, m; h_o — depth of immersing сошника, m.

Hence from the formula (1) we can define depth of immersing working-organ

$$h_o = h_1 \frac{(\rho - \rho_o)}{\rho} \quad (2)$$

At following values of density of soil ρ =1,2 … 1,3 g/sm^3, ρ_0=1,0 … 1,1 g/sm^3 under the formula (2) depth of immersing сошника it is found in limits 2,0 … 4,0 sm.

Height of wings working-organ we will define from a condition not over turning layers of earth through the bottom part

$$H \geq K_c \left(h_н + h_o \right) \quad (3)$$

Where: H- height of wings сошника, m; K_c — the factor considering обволакивание heaps of soil; $h_н$ — average size of height of roughness of a surface of soil, m.

Considering (1) formula, (3) formula we will transform to a following kind

$$H \geq K_c \left[h_н + h_1 \left(1 - \frac{\rho_o}{\rho} \right) \right] \quad (4)$$

Being based on researches [2, 291; 3, 124] and the spent experiences at the following sections K_c = 1.8, $h_н$ = 6…8 sm, h_1 = 24 sm, ρ_o = =1.0…1.1 g/sm^3, ρ=1,2…1,3 g/sm^3 under the formula (4) we find height of wings working-organ, in limits it is not less $H \geq 14$ … 18 sm.

The spent experimental researches in field conditions have shown that the heap of soil before working-organ in cotton row-spacing depends on a soil condition. At humidity of soil there are less than 8–11% and hardness, it is more 1,6–2,0 МПа, after preceding processing the increase in an exit of large fractions and volume of small groups before working-organ was observed. And at humidity of soil within 16–20% reduction of volume of small groups was observed. Preceding from this it is possible to draw a conclusion that for maintenance not over turning soil small groups through wings working-organ its height within 14 … 18 sm are optimum.

The corner of installation of wings α in a longitudinal direction of movement working-organ should provide passage of particles of soil with sliding with smaller force of a friction and not envelop a heap of soil in blocks (fig. 1) [3, 124], that is it is necessary to meet a condition

$$\alpha = \frac{\pi}{2} - \phi_c \quad (5)$$

Where: φ_c — a corner of an external friction of soil, grad.

The analysis of frictional properties of soils has shown that the corner of an external friction depends on humidity, cleanliness of a surface of wings and specific pressure (fig. 2).

From the presented schedule (fig. 2) it is visible that the size of a corner of a vernal friction from humidity and specific pressure on the average makes 43$^{0.}$ On the basis of this value of a corner under the formula (5) we find a corner of installation of wings in a longitudinal direction of movement working-organ equal α = 47°.

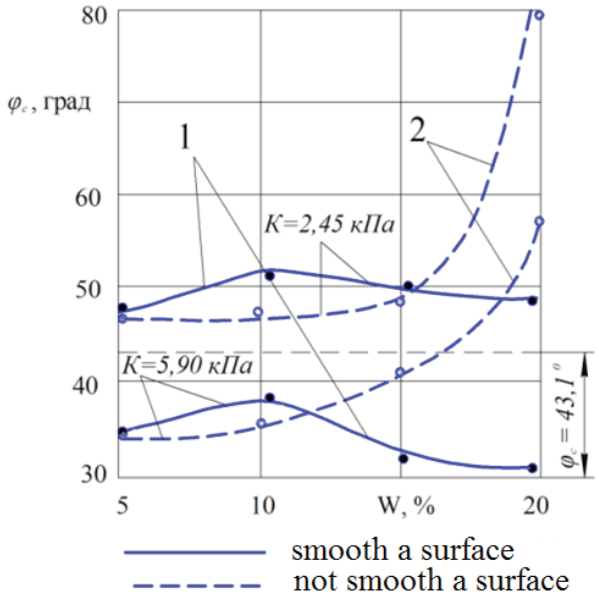

Figure 2. Dependence of a corner of an external friction of soil on humidity and specific pressure

The conclusion that, for maintenance of qualitative crops with the least resistance, a corner of installation of wings in a longitudinal direction of movement working-organ equal α = 47° is the most favorable.

Corner of a solution of wings working-organ at immersing in soil on depth h_0 the furrow should slightly will be condensed, to be formed a smooth surface of a profile of a bed of a row-spacing. For this purpose the soil should be exposed to easy consolidation (fig. 1). Proceeding from it, a corner of a solution of wings working-organ we will prove from the point of view of a choice of the minimum size of a way on which is exposed to expression of a particle of soil. On V. P. Goryachkinu [4, 384] it is known that

$$tg\gamma = \frac{tg\alpha}{tg\omega_c} \quad (6)$$

Usually soil deformation begins on joints of an edge of wings working-organ. If to consider that the profile of a furrow of a row-spacing is located at an angle $\omega \approx 22°$ and wings are established at an angle in a movement direction working-organ, equal α= 47° under the formula (6) it is found $\gamma = arctg\, 2{,}6542$; γ = 69°

The conclusion that a corner of a solution of wings working-organ, equal γ =69° is optimum.

For maintenance of steady work, knifes working-organ should in regular intervals deepen in soil. For this purpose it is recommended to arrange them on the right and left wings under identical γ a corner, on identical longitudinal and cross-section directions symmetrically, on strokes-lines аб and бс (fig. 1).

Distance between knifes tc it is chosen in dependence of width of distribution of deformation $b_д$ at interaction of a knife with seed-funnel (fig. 3).

At movement, a knife from a vertical component of traction resistance and gravity of section, plunge into soil, forcing out particles in lateral face. The corner increase $\alpha_п$ promotes increase in pressing force and appreciable reduction of forcing out force within width of a knife. Thus a corner of immersing of a knife $\alpha_п$, a corner of sharpening of a breast $2\beta'$ and width seed-funnel $b_э$ are key parameters working-organ.

From schemes (fig. 3) a zone of distribution of width of deformation we will express the formula

$$b_д = b_э + 2h_э \cdot tg\psi_{б-2} \quad (7)$$

At lower case crops before knifes it should not be formed covering soils, the distance between knifes should be more width of deformation, that is $t_c > b_д$.

At values of external diameter seed-funnel $b_э$= 3 sm, depths of crops $h_э$= 5 sm, a corner lateral breaking $\psi_{б-2}$= 500 under the formula (7) width of deformation of soil of a row-spacing should be more $b_д$>14,9 sm.

Proceeding from it the quantity of knifes in working-organ will be will be defined in a following order

$$n_п = \frac{B_м}{b_э + 2h_э \cdot tg\psi_{ён-2}} \quad (8)$$

Where: $B_м$ — width of row-spacing of a cotton, m. ($B_м$= 60; 90 sm).

At values of external diameter seed-passer $b_э$= 3 sm, depths of crops $h_э$= 5 sm, a corner lateral breaking $\psi_{б-2}$= 500 under the formula (8) for row-spacing of $B_м$= 60 sm are recommended to arrange 5 knifes, for row-spacing of $B_м$= 90 sm — of 9 knifes at an angle a solution of wings γ=69°.

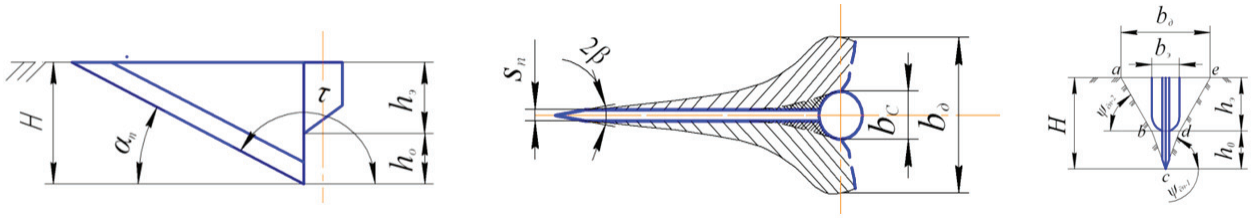

Figure 3. A zone of distribution of deformation from a knife and seed-funnel
Where: $h_э$ – depth of crops, mm; $\psi_{6\text{-}2}$ – corner lateral breaking, grad; $b_э$ – width seed-funnel, mm.

Under the received data it is possible to draw a conclusion that for qualitative crops and formation of the form of a bed working-organ should will plunge into soil in limits to 2,0 … 4,0 sm; for formation of slightly condensed form of a furrow in the course of work should be constantly pressed to a row-spacing surface; to provide not over turning soil small groups through wings working-organ with optimum height within 14 … 18 sm; the corner of installation of wings in a longitudinal direction of movement working-organ equal α=47° is the most favorable; the corner of a solution of wings working-organ, equal γ=69° is optimum; results of researches are introduced in educational process, as the methodical grant for master degree.

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DOI: http://dx.doi.org/10.20534/ESR-17-1.2-216-218

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Development of technology integrated design form a unibody clothing details

Abstract: In the article the results of research conducted on the development of technology complex a consistent single-process designing of fabrics and details of garments, including all stages of a single system for design documentation.

Keywords: complex designing, formation, weaving, technical project, a sketch and technical projecting, design stages, subsystems, structure designed fabric, integrally form a semi-finished parts of clothing.

The most important condition for the effective functioning of the industry in general is the optimum ratio between its industries, a diversified and balanced development of the vertical and horizontal, in particular, the introduction of new innovative technologies in the design and manufacture of products of light industry [1].

Classical methods of designing and manufacturing clothing from woven materials focused primarily on the use of its production already existing range of fabrics. Nowadays fundamentally new methods of creating clothes, based on an integrated approach to the design of material for clothes and most clothes, requiring a fundamental change in technology design and creation of fundamentally new equipment for its manufacture. Among them: production of parts and units sewing products a cut from one piece of semi-finished on special equipment using the formability of tissues [2–4], getting integrally of woven garment components directly on the weaving equipment, methods using direct digital printing while receiving fabric, knitted fabrics and details or samples clothes from her and some other [5–9]. These methods are highly efficient