

# **GULISTAN STATE UNIVERSITY**



**THE IMPORTANCE, DEPTH, AND  
TIMING OF AUTUMN PLOWING. WAYS  
TO INCREASE THE THICKNESS OF A  
SOLID LAYER.**

**KUZGI SHUDGORNING AHAMIYATI,  
CHUQURLIGI VA MUDDATLARI.  
HAYDALMA QATLAM QALINLIGINI  
OSHIRISH USULLARI**

**Altmishev O. The importance, depth, and timing of autumn plowing. Ways to increase the thickness of a solid layer. (Kuzgi shudgorning ahamiyati, chuqurligi va muddatlari. Haydalma qatlam qalinligini oshirish usullari)–Gulistan, 2025.- 20. p.**

Ushbu ma’ruza matni Dehqonchilik fanidan o‘tiladigan “Kuzgi shudgorning ahamiyati, chuqurligi va muddatlari. Haydalma qatlam qalinligini oshirish usullari” mavzusiga bag’ishlangan bo‘lib, unda shudorning, xususan kuzgi shudgorning ekinlar hosildorligini oshirishdagi ahamiyati, haydash sifati, chuqurligi, muddatlari va haydalma qatlamning qalinligini oshirish to‘g‘risidagi ma’lumotlar ingliz va o‘zbek tillarida bayon etilgan hamda asosiy atamalar izohi– glossariy keltrilgan. Ma’ruza 2-bosqich Agronomiya (anorchilik) ta’lim yo‘nalishi talabalariga mo‘ljallangan.

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**THE IMPORTANCE, DEPTH, AND TIMING OF AUTUMN PLOWING.  
WAYS TO INCREASE THE THICKNESS OF A SOLID LAYER. (Kuzgi  
shudgorning ahamiyati, chuqurligi va muddatlari. Haydalma qatlam  
qalinligini oshirish usullari)**

Yerga ishlov bermasdan unda ekin yetishtirib bo'lmaydi. Tuproq o'simlik ildizi uchun yetarli darajada yumshoq bo'lganda, uning suv-fizik xususiyatlari va mikroorganizmlarning faoliyati yaxshi bo'ladi. Yerni ishlash deganda uni shudgor qilish, tekislash, boronalash, kultivatsiyalash, chizellash, mola bosish kabilar tushuniladi. Bir-biri bilan bog'liq holda o'tkaziladigan tuproqqa har xil mexanik ta'sir etishlarga yerni ishlash tizimi deyiladi.

*It is impossible to grow a crop without tillage. When the soil is soft enough for the root of the plant, its water-physical properties and the activity of microorganisms are good. Working the Earth is understood as plowing, leveling, boroning, cultivating, plowing, Mola pressing. Various mechanical influences on the soil, which are carried out in connection with each other, are called the earth working system.*

Yer ishlanganda tuproq (suv, havo, issiqlik va oziq) rejimlarining qulay bo'lishi uchun sharoit yaratiladi, ya'ni haydalma qatlam tuzilishi va uning donadorligi o'zgaradi, tuproqning quyi qatlamidagi oziq moddalar yuqoriga ko'tarilib, uning aylanish davri va mikrobiologik jarayonlar tezlatiladi, begona o'tlar yo'qotiladi, organo-mineral o'g'it va ang'izlar tuproqqa qo'shiladi, tuproq yuza qatlamida yoki o'simlik qoldiqlarida yashayotgan ekinlarning zararkunanda va kasallik qo'zg'atuvchilari yo'qotiladi, yerni ekin ekishga tayyorlash, egat va jo'yak olish hamda ekinni parvarish qilishda qator orasiga ishlov berish, begona o'tlarni yo'qotish kabi ishlar bajariladi.

*When the Earth is worked, conditions are created for the convenience of soil (water, air, heat and food) regimes, that is, the structure of the eviction layer and its granularity change, nutrients in the lower layer of the soil rise up, its rotation period and microbiological processes are accelerated, weeds are lost, organo-mineral fertilizers and Anguses are added to the soil, pests and disease pathogens of, work is carried out, such as processing between the row, weed loss, in obtaining egats and Furrows, as well as in the care of the crop.*

Yerni ishlashda quyidagi texnologik jarayonlar amalga oshiriladi:

- yer qatlamini ag'dariladi, aralashtiriladi va yumshatiladi;
- begona o't ildizlari qirqiladi, tuproq zichlanadi, tekislanadi, egat va jo'yak olinadi. Yer zaruriyatga qarab yuza haydov chuqurligida yumshatiladi.

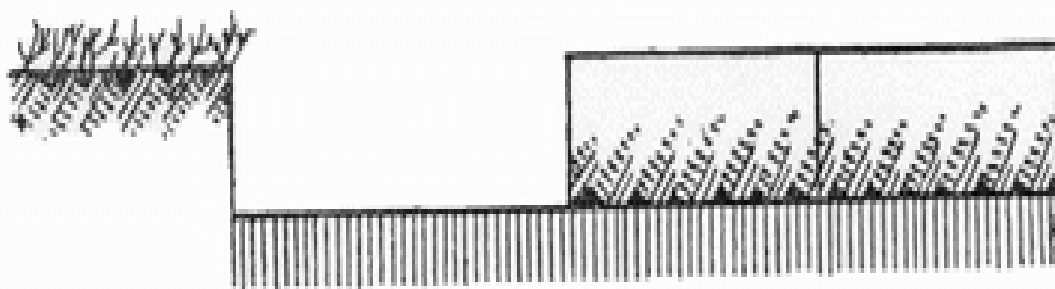
Haydalma qatlam tuprog'ini aralashtirish natijasida tuproqdagi organik va mineral o'g'itlar, mikroorganizmlar haydalma qatlamda bir tekis taqsimlanib, tuproq unumdorligini oshiradi. Tuproqni zichlash ya'ni mola bostirilganda

kapillyar g'ovakligi ortadi. Ekilgan urug'larni pastki qatlamdagi namlik bilan ta'minlash yaxshi bo'ladi. Sug'oriladigan dehqonchilikda yerni tekislashning ekin ekish va uni parvarish qilish uchun ahamiyati katta, bunda sifatli ekish, sug'orish, parvarish qilish uchun sharoit yaratiladi.

*When working the Earth, the following technological processes are carried out: - the Earth layer is turned over, mixed and softened; - weed roots are cut, the soil is compacted, leveled, Egate and furrow are obtained. The Earth is loosened at the depth of the surface drive, depending on the need. As a result of mixing the soil of the plowing layer, organic and mineral fertilizers in the soil, microorganisms are evenly distributed in the plowing layer, increasing soil fertility. Soil compaction i.e. capillary porosity increases when the mola is suppressed. It will be good to provide the planted seeds with moisture in the lower layer. In irrigated agriculture, land leveling is important for planting and caring for crops, creating conditions for quality planting, irrigation, care.*

Yer haydalganda ag'darilayotgan qatlamlar  $135^{\circ}$ - $145^{\circ}$  qiyalikda bir-biriga yonboshlasa, qatlam chala, qatlam  $180^{\circ}$  ag'darilsa to'liq ag'darilgan hisoblanadi. Yerni haydash sifati plug ag'dargich (otval) larining shakliga bog'liq. Ular vintsimon, silindrsimon, yarim vintsimon va madaniy bo'ladi. Madaniy otvalli pluglar qatlamni yaxshi uvoqlaydi va ag'daradi. 1870 yili Rudolf Sakk yarim vintsimon va silindrsimon otvalli pluglardan madaniy otvalli pulg yaratdi. Bu plugning asosiy korpusi oldiga kengligi asosiy korpusning  $\frac{2}{3}$  qismiga teng keladigan chimqirqar o'rnatilgan. Hozirgi vaqtda yer PYA-3-35, PN-4-35 P-5-35M, markali tirkama yoki osma pluglar bilan haydalmoqda. Keyingi yillarda «Keys» kompaniyasi ishlab chiqargan aylanma pluglardan ham foydalanilmoqda.

Hozirgi davrda shamol eroziyasiga moyil yerlarni ag'darmasdan, ang'izlar saqlangan holda asosiy ishlov berish usuli keng qo'llanilmoqda. Yerni sifatli ishlash qo'llanilayotgan qurolning tuzilishiga, ya'ni plug otvalining shakliga, ishchi organlarning turiga, agregatning yurish tezligiga va tuproqning texnologik xossalariga bog'liq.



**1-rasm. Qatlamni  $180^{\circ}$  ag'darib haydash**



## **2-rasm. Qatlamni 145<sup>0</sup> ag'darib haydash**

*The layers that are toppled when the Earth is driven are considered to be completely toppled if they lie side by side on a slope of 135<sup>0</sup>-145<sup>0</sup>, the layer is to play, and the layer is toppled by 180<sup>0</sup>. The quality of plowing depends on The Shape of the plough capers (otvals). They are winch-shaped, cylindrical, semi-winch-shaped and cultured. Cultural otval plugs rub and overturn the layer well. In 1870 Rudolf sack created a cultured otval pulg from semi-screw and cylindrical otval plugs. In front of the main body of this plug, a pinch is installed, the width of which is equal to 2/3 of the main body.*

*Currently, the ground is driven by PYA-3-35, PN-4-35 P-5-35m, branded trailer or suspension plugs. In later years, turntables manufactured by "Case" were also used.*

Tuproqning texnologik xususiyati uning ilashimliligi, yopishqoqligi va hajmiy og'irligi bilan ifodalanadi. Bu xususiyat uning namligi, mexanik tarkibi, qattiqligi, donadorligi va boshqalar bilan belgilanadi.

Yerning sifatli ishlanishi dalaning o'simlik qoldiqlari va begona o'tlar bilan ifloslanganlik darajasiga ham bog'liq. Sernam yer haydalganda palaxsalar hosil bo'ladi, yaxshi maydalanmaydi, quruq yer haydalganda esa, katta-katta palaxsalar ko'chadi, og'ir va yengil soz tuproqli yerlar namligi to'la nam sig'imiga nisbatan 40-60% bo'lganda haydalsa yaxshi uvoqlanadi. Tuproq namligi ortiq bo'lsa u ishchi organlarga yopishib yer sifatsiz haydaladi.

*The technological nature of the soil is expressed in its unpretentiousness, viscosity and volumetric weight. This property is determined by its moisture content, mechanical composition, hardness, granularity, etc.*

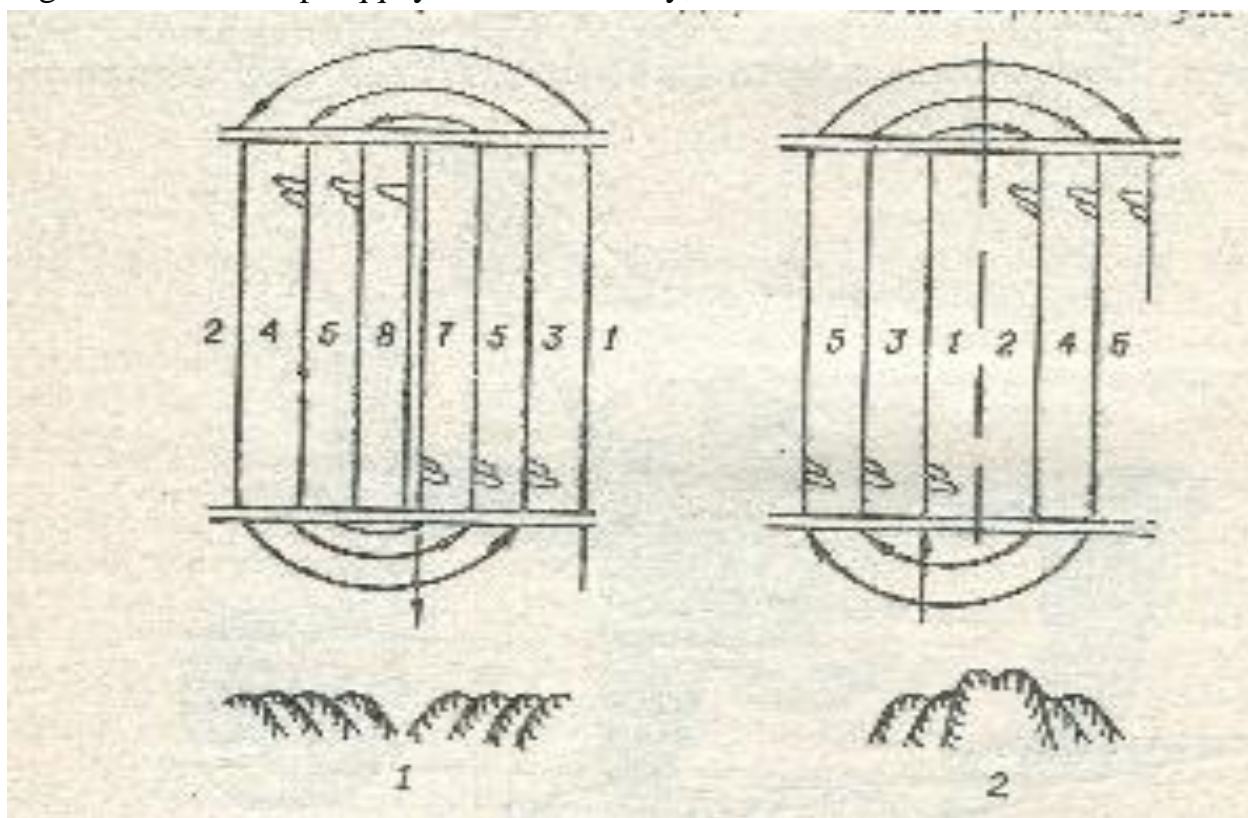
*The quality workmanship of the land also depends on the degree of contamination of the field by plant debris and weeds. Palaxas are formed when Sernam land is plowed, not well ground, while when dry land is plowed, large-scale palaxas are plowed, and heavy and light-grained soils are well-grazed if they are plowed at 40-60% moisture to their full wet capacity. If the soil moisture exceeds it is expelled from the poor quality of the ground adhering to working organs.*



Yer asosan 2 usulda, ya'ni aylanma yoki shaklli va taxta (zagon) larga bo'lib haydaladi.

Aylanma yoki shaklli haydash uchastkaning o'rtasi yoki chekkasidan boshlanadi. Bunda plug qayrilishlarda haydash chuqurligidan ko'tarilmaydi haydash esa uchastkaning o'rtasi yoki chetida tugallanadi. Bu usulda haydash chuqurligi hamma yerda bir tekis bo'lmaydi. Shuning uchun dehqonchilikda aylanma yoki shaklli haydash usuli man etilgan.

Dala to'g'ri taxtalarga-zagonlarga bo'lib haydalganda sifatli bo'ladi. Traktorning salt yurishini marza va egatlar sonini kamaytirish uchun taxtaning eni 40-80 m bo'lgani yaxshi. Yer soatiga 7-7,5 km tezlikda haydalsa, qatlam yaxshi ag'dariladi, uvoqlanadi va tekis bo'ladi. Haydov sifati yerni haydash vaqtida yoki haydalgandan keyin tekshiriladi. Yerning sifatli haydalishi bu tadbirning o'z vaqtida o'tkazilishiga, chuqurligi agregat buriladigan joydan taxtaning oxirigacha bir xil bo'lishiga bog'liq. Bedapoya va ang'izlar ayniqsa, sifatli haydalishi kerak, qatlam to'la ag'darilmasa, erta bahorda beda yoki begona o'tlar o'sib chiqadi, organik massalar tuproqqa yaxshi ko'milmay, ekin sifatsiz ekiladi.



**3-rasm. Yerni taxta (zagon) larga bo'lib haydash sxemasi 1-egat, 2-marza**

*The land is mostly plowed in 2 ways, either circular or shaped, and in planks (zagons). A circular or shaped drive begins in the middle or edge of the plot. In this case, the plug does not rise from the depth of the drive in the turns while the drive is completed in the middle or edge of the plot. This means that the*

*driving depth is not uniform everywhere. Therefore, the method of circular or shaped driving is prohibited in agriculture.*

*The field is of good quality when driven into straight boards-zagons. It is good that the width of the board is 40-80 m in order to reduce the Salt Walk of the tractor to the number of marza and egats. When the Earth is driven at a speed of 7-7.5 km / h, the layer is well overturned, rubbed and leveled. The quality of the drive is checked during or after driving the ground. The qualitative expulsion of the earth depends on the timeliness of this event, the depth of which is the same from the place where the aggregate turns to the end of the board. Bedapoya and prunes should be driven out especially qualitatively, if the layer does not completely turn over, alfalfa or weeds will sprout in early spring, organic masses will not be well buried in the soil, and the crop will be planted of poor quality.*

Organik massalar, xas va cho'plarning 10% i tuproqqa ko'milmay qolsa, yer sifatsiz haydalgan hisoblanadi. Diametri 5 sm dan katta kesaklar palaxsa hisoblanadi. 1m<sup>2</sup> da o'rtacha 5 ta dan ortiq palaxsa bo'lsa, haydash qoniqarsiz hisoblanadi. Takroriy ekin ekiladigan yer tuprog'i yaxshi uvoqlanishi kerak, aks holda uni maydalashga ko'p mehnat va yonilg'i sarf bo'ladi, kuzgi shudgorda palaxsa hosil bo'lsa ham zarari yo'q, chunki qishki yog'in-sochinda ular maydalanib ketadi. Ko'z bilan chamalaganda chala joy umumiy maydonning 0,2% idan ortiq bo'lmasligi lozim, aks holda yer qoniqarsiz haydalgan hisoblanadi.

"Yer haydasang kuz hayda, kuz haydamasang yuz hayda" degan naql bejiz aytilmagan. Yer kuzda haydalganda kesaklar orasidagi suv sovuq va iliq kunlarda goho muzlab, goho erib kesaklarni maydalanishini ta'minlaydi. Kuzda haydab qo'yilgan yerda namlik ko'p to'planadi, mikrobiologik jarayonlar uchun qulay sharoit yaratiladi. O'simlik qoldiqlari ko'milib chirishi uchun imkoniyat yaratiladi. Kuzda haydab qo'yilgan yerni bahorda ekin ekishga tayyorlash ancha oson bo'ladi. Sifatli o'tkazilgan kuzgi shudgor bahorgi haydashga nisbatan ekinlar hosilini 10-20% oshiradi, hosil erta va sifatli bo'lib yetiladi.

*When 10% of organic masses, Hass and debris are not buried in the soil, the land is considered to be of poor quality eviction. Cuts larger than 5 cm in diameter are palaxsa. Driving is considered unsatisfactory if there are on average more than 5 palaxas in 1m<sup>2</sup>. The soil on which repeated crops are planted should be well rubbed, otherwise it will take a lot of work and fuel to grind it, there will be no harm even if a palaxsa is formed on the autumn plow, since in winter precipitation-hair they will crumble. When squinting, the playing Place should not be more than 0.2% of the total area, otherwise the Earth is considered unsatisfactory eviction.*

*When the Earth is plowed in the fall, the water between the cuts freezes on cold and warm days, allowing the goho to melt and crush the cuts. In the fall, the*

*evicted land accumulates a lot of moisture, creating favorable conditions for microbiological processes. An opportunity is created for the plant remains to be buried and rot. In the fall, it will be much easier to prepare the evicted land for planting in the spring. A qualitatively transferred autumn plow increases crop yields by 10-20% compared to spring plowing, the crop matures early and of good quality.*

Respublikamizning shimoliy zonasida noyabr oyi, markaziy zonasida 15 noyabrdan 15 dekabrgacha, janubiy zonada 20 noyabrdan 15 dekabrgacha bo'lgan vaqt kuzgi shudgor uchun eng qulay vaqt hisoblanadi. Tuproq sharoitiga ko'ra yer 30-35 sm gacha chuqurlikda haydalishi mumkin. Yangi o'zlashtirilgan yerlar 20-22 sm chuqurlikda haydaladi. Keyinchalik haydash chuqurligi asta-sekin oshirib boriladi.

Yerni ikki yarusli haydash muhim ahamiyatga ega. Buning uchun PYA-3-35, PUYA-3-35 rusmli pluglardan foydalaniladi. Ikki yarusli haydalganda ustki qatlam (0-15sm) pastga, pastki qatlam (15-30 sm) tepaga chiqariladi. Tuproqning xossalari yaxshilanadi. Ekinlar hosili ma'lum darajada oshadi. Yerni har xil chuqurlikda haydash begona o'tlarni, zararkunandalarni, kasalliklarni kamaytirish va organik qoldiqlarni to'la chirishini ta'minlash uchun o'tkaziladi. Yer birinchi yili 30-32 sm, ikkinchi yili 22-24 sm, uchinchi yili 26-28 sm chuqurlikda haydalsa, yuqorida ko'rsatilgan chuqurlikdagi qatlamga tushgan zararli organizmlar hamda organik qoldiqlar uch yilgacha tuproq yuzasiga chiqarilmaydi. Natijada zararli organizmlarni kamayishi va o'simlik qoldiqlarini to'la chirishiga erishiladi. Haydalma qatlam qalinligini oshirish tuproq profilining tuzilishini hisobga olgan holda olib boriladi. Qumli, shag'al qatlam yuza yotgan yerlarda erta bahorda loyqa yotqizish (kolmataj) usuli bilan haydalma qatlam qalinligi oshiriladi. Bu har yili bahorda bir necha marta takrorlanadi.

*The month of November in the northern zone of our republic, 15 November to 15 December in the central zone, 20 November to 15 December in the southern zone is the most favorable time for autumn plowing. According to soil conditions, the earth can be expelled to a depth of up to 30-35 sm. Newly acquired land is plowed at a depth of 20-22 sm.*

*The driving depth is then gradually increased. It is important to drive the ground with two halves. For this, plows of the PYA-3-35, PUYA-3-35 rusms are used. When the two halves are driven, the top layer (0-15sm) is removed down, the bottom layer (15-30 cm) is removed to the top. The properties of the soil are improved. Crop yields increase to some extent. Plowing the Earth at different depths is carried out to reduce weeds, pests, diseases and ensure full rotting of organic debris. When the Earth is expelled in the first year at a depth of 30-32 sm, in the second year at a depth of 22-24 sm, in the third year at a depth of 26-28 sm,*



*harmful organisms that have fallen into the layer of the above depth, as well as organic residues, are not released on the soil surface for up to three years. As a result, a decrease in harmful organisms and full rotting of plant residues is achieved. Increasing the thickness of the plowing layer is carried out taking into account the structure of the soil profile. In the areas where the sandy, gravel layer lies on the surface, the thickness of the plowing layer is increased by the method of early spring fuzzy laying (colmatage). This is repeated several times each year in the spring.*

Haydalma qatlam qalinligini oshirish uchun tepaliklar tuprog'i, go'ng va boshqa organik o'g'itlardan ham foydalanish mumkin. Qadimdan sug'oriladigan yerlarda agroirrigatsion yotqiziqlarning qalinligi 2-3 m dan ortadi. Ana shu joylarda haydalma qatlam qalinligini bemaol oshirish mumkin. Akademik M.Muhammadjonov qadimdan sug'orib dehqonchilik qilinayotgan haydalma qatlam osti zichlashgan hamma yerlarda har 3-4 yilda bir marta yerni 50-60 sm chuqurlikda yumshatib bir yo'la 28-30 sm chuqurlikda ag'darib haydashni tavsiya qiladi. Bunda yer kuzda GR-2,7 rusumli chuqur yumshatgich bilan yumshatiladi, keyin plugda ag'darib haydaladi. Professor A.Ermatov bedapoyani 60 sm chuqurlikda haydash va organo-mineral o'g'itlar solish haydalma qatlam qalinligini oshirishda samarali usullardan ekanligini ta'kidlaydi. Haydalma qatlam qalinligini oshirilishi va tuzilishini yaxshilanishi bedadan va undan keyin ekilgan ekinlardan yuqori hosil olishni ta'minlashi bu olim o'tkazgan tajribalarida ko'rsatib berilgan. Xorazm viloyati, Farg'ona viloyatining Qo'qon atrofi tumanlari va Qoraqalpog'iston respublikasida asosiy haydovni bahorda o'tkaziladi. Yerni bahorda haydash kuzgi shudgorlashga qaraganda tashkiliy jihatdan kamchiliklarga ega bo'lishiga qaramasdan xo'jaliklarning tuproqsharoiti shuni taqozo etadi. Bu joylarda yer 3-4, ayrim maydonlarning sho'ri 5 martagacha yuviladi. Shundan keyin yer yetilishi bilan pollar tekislanib mahalliy va mineral o'g'itlar solinib haydaladi. Agar ko'klamda shamol ko'p bo'lsa yerni yuza qismi tez quriydi. Bunday paytda kesaklar ko'p hosil bo'ladi va pastki qatlamga ko'miladi, yerning ortiqroq ko'pchishi kuzatiladi. Yer yaxshi o'tirishmagan bo'ladi. Shuning uchun bahorgi haydovdan keyin yer bir necha marta chizellanadi, mola bostiriladi va zudlik bilan ekiladi.

*Hill soil, manure and other organic fertilizers can also be used to increase the thickness of the plowing layer. The thickness of agroirrigating deposits on irrigated lands from time immemorial increases from 2-3 m. It is in these places that the thickness of the plowing layer can be easily increased. Academician M.Muhammadjonov recommends plowing the ground once every 3-4 years on all lands compacted under the plowing layer, which has long been irrigated and cultivated, loosening it to a depth of 50-60 cm and rolling it to a depth of 28-30*

*CM in one lane. In this case, the Earth is loosened in the fall with a deep softener of the GR-2.7, then rolled over and plowed in a plug. Professor A.Ermatorov notes that driving bedapoya to a depth of 60 cm and applying organo-mineral fertilizers are effective methods in increasing the thickness of the driving layer. Increasing the thickness of the plowing layer and improving its structure ensure a higher yield from alfalfa and subsequent plantings is demonstrated in experiments conducted by this scientist. The main drive in the Khorezm region, the Kokand suburban districts of the Fergana region and the Republic of Karakalpakstan is held in the spring. Despite the fact that plowing the land in the spring has more organizational disadvantages than autumn plowing, the soil conditions of the farms dictate this. In these places, the Earth is washed 3-4 times, and the shoals of certain areas up to 5 times. After that, as the Earth matures, the floors are leveled and local and mineral fertilizers are laid and plowed. If there is a lot of wind in the canopy, the surface part of the Earth dries quickly. At this time, the incisors are formed a lot and buried in the lower layer, there is a more abundant increase in the Earth. The ground will not sit well. Therefore, after the spring drive, the Earth is drawn several times, the mola is suppressed and planted immediately.*



*5-rasm. Besh korpusli plug PLN-5-35*

Almashlab ekishda beda tuproq unumdorligini va donadorligini tiklovchi asosiy ekin hisoblanadi. Bedapoyani haydashda xo‘jaliklarda kamchiliklarga yo‘l qo‘yilmoqda. P-5-35M, PN-4-35 pluglarning chimqirqari asosiy korpus qamrov kenglini to‘la kesib egat tubiga tashlamay, balki oldingi ag‘darilgan qatlamning yonboshiga tashlaydi. Bunda ildiz ikki qatlam orasidagi 10-12 sm chuqurlikka

tushadi va bahorda qayta ko'karib chiqadi. Ayrim vaqtlarda kuzda shudgor qilingan bedapoyani bahorda yuza yumshatishga yoki kultivatorlar bilan yoppasiga ishlashga, ko'pchilik holda erta bahorda kultivatsiya qilingan yoki chizellangan bedapoyadagi ildizlarni tirmalab yig'ib olishga to'g'ri keladi. G'o'zadan keyin beda ekishdan maqsad yerning unumdorligini oshirish, fizik xossalarini yaxshilash va beda ildiz massasini chirishini boshqarib undan kamida 5-7 yil foydalanishni ko'zda tutiladi. Ma'lumki, uch yillik beda gektariga 300-500 kg dan ortiq biologik azot va 16-22 tonna ildiz massasini to'playdi.

Yerni haydash texnologiyasi to'g'ri tashkil etilmasa beda to'plagan organik massa tezda minerallashadi. Beda ildizini bahorda ko'karib chiqishini oldini olish va organik massani chirishini sekinlashtirish uchun bedapoyani haydash texnologiyasini takomillashtirish kerak. Buning uchun plugning ag'darigichlari olinib lemexlari o'tkirlanadi. Bedapoyani haydashdan 5-7 kun oldin yer ustki qismi 5-6 sm chuqurlikda ana shu ag'dargichi olingan plug bilan haydaladi. Shunda bedaning ildiz bo'g'zi 5-6 sm chuqurlikda kesilib unuvchanligi yo'qoladi. Yer kuzda shudgorlanganda organik qoldiqlar tuproqning chuqur qatlamiga ko'miladi. Tajriba natijalari bu usulda haydalganda ildizni minerallashuvi sekinlashganligini ko'rsatgan.

*In crop rotation, alfalfa is the main crop that restores soil fertility and granularity. When driving bedapoya, disadvantages are allowed in farms. The P-5-35m, PN-4-35 flickering of the plugs does not completely cut the main body coverage width and throw it to the bottom of the egat, but to the side of the previous overturned layer. In this case, The Root falls to a depth of 10-12 cm between the two layers and germinates again in spring. At certain times, the bedapoya plowed in the fall will have to be loosened to the surface in the spring or worked with cultivators to cover, in most cases picking up the roots in the bedapoya that were cultivated or plucked in early spring. The goal of planting alfalfa after Acorns is to increase the fertility of the Earth, improve its physical properties and use it for at least 5-7 years, controlling the rotting of alfalfa root mass. It is known that three-year alfalfa accumulates more than 300-500 kg of biological nitrogen and 16-22 tons of root mass per hectare.*

*The organic mass that beda accumulates quickly mineralizes if Earth plowing technology is not properly organized. To prevent the Alfalfa root from germinating in the spring and slow down the rotting of the organic mass, it is necessary to improve the technology of driving the bedapoya. To do this, the limexes of the plug are taken and the lemexes are sharpened. 5-7 days before driving the bedapoya, the top of the Earth is driven by a plug from which this limestone was obtained at a depth of 5-6 cm. Then the root bough of the Bede is cut to a depth of 5-6 cm and its uniqueness disappears. When the Earth is plowed*

*in autumn, organic debris is buried in a deep layer of soil. The results of the experiment showed that the mineralization of the root slowed down when driven by this method.*

Beda ekilgan dalani 20-25 oktyabrdan 10-15 noyabrgacha haydash kerak. Sizot suvlari chuqur joylashgan, yeri quruq va qattiq bedapoyani sifatli haydash uchun 7-10 kun avval yerni sug'orish kerak. Bedapoyani ikki yarusli plugda chuqur haydash yana ham yaxshi natija beradi. Sayoz ko'milgan ildizpoyalar g'o'zaning qator oralariga dastlabki ishlov berilganda uning sifatsiz bajarilishiga va ko'chat siyrak bo'lishiga sabab bo'ladi. O'zPITI ma'lumotlariga ko'ra bedapoyani har yili har xil chuqurlikda haydash foydali ekan. Masalan: 1-yili 30-40 sm; 2-yili 20-22 sm; 3-yili 30 sm; 4-yili 40 sm. Kuzgi shudgorlash chuqurligi o'zgartirib borilganda bir xil chuqurlikda haydashga qaraganda besh yilda g'o'zaning gektaridan 28,6 st dan qo'shimcha hosil olingan. Yoppasiga ekilgan g'alla ekinlari hosili yig'ishtirib olingan dala ang'iz deyiladi.

Bir yillik ekinlardan bo'shagan bunday dalalarda chimzorlarga qaraganda organik moddalar ancha kam, tuprog'i quruq, strukturasi yomon, zichlashgan, begona o'tlar va ularning urug'i ko'p bo'ladi. Ang'izda zararkunandalar va kasalliklar ko'p uchraydi. Ang'izni ishlash tizimi uni lushchilnik bilan yumshatish va kuzgi shudgorlashdan iborat. Ko'p yillik begona o'tlar bosgan dalalar 2 marta yumshatiladi. Birinchi holda diskli lushchilnik bilan 4-5 sm chuqurlikda, keyin ag'dargichli lushchilnik bilan 10-12 sm chuqurlikda yumshatiladi. Bir yillik begona o'tlar bosgan dalalar 4-5 sm chuqurlikda 1 marta yumshatiladi. Bunday yerlar oktyabr oyining boshlarida shudgorlanadi. Kuzgi haydashni shimoliy mintaqada 15 noyabrdan, janubiy mintaqada 30 noyabrdan kechiktirmaslik kerak.

*A field sown with alfalfa must be plowed from October 20-25 to November 10-15. For high-quality alfalfa plowing with deep, dry and hardy waters, it is necessary to water the ground 7-10 days before. Deep driving of the bedapoy into a two-tier fork gives an even better result. Shallow buried rhizomes are the reason that during the initial processing of cotton row spacing, it will be performed poorly, and the seedling will be rare. According to uzpiti, it is useful to drive the bedapoya to different depths every year. For example: 1st year 30-40 cm; 2nd year 20-22 cm; 3rd year 30 cm; 4th year 40 cm. During autumn plowing, with a change in the plowing depth to the same depth, an additional 28.6 C cotton crop per hectare was obtained in five years.*

*The field where the crops planted in joppa are harvested is called angiz. Such fields, free of annual crops, have significantly less organic matter than turf fields, the soil is dry, poorly structured, compacted, and there are many weeds and their seeds. Pests and diseases are common in rye. The rye processing system consists of loosening it with a husker and autumn plowing. Fields overgrown with*



*perennial weeds are loosened 2 times. In the first case, it is loosened to a depth of 4-5 cm with a disc husker, then to a depth of 10-12 cm with an inverted husker. Fields overgrown with annual weeds are loosened 1 time to a depth of 4-5 cm. Such lands are plowed in early October. Autumn plowing should not be delayed from November 15 in the northern region and from November 30 in the Southern region.*

Kuchli shamol bo'ladigan tumanlarda ko'p yillik begona o'tlar kam o'sgan uchastkalarni ag'dargichsiz plug bilan haydash yaxshi samara beradi. E.I.Zaurov, U.Xo'jabekov bu usulda haydalganda bug'doy hosili 20-23%, lalmikor dehqonchilik ITI 8-12% ortishi haqida yozishgan. Eskidan haydalib sug'oriladigan yerlar sholi ekish uchun asosan kuzda haydaladi. O'zbekiston sholichilik ITI xodimlari yerni yuza haydashga nisbatan chuqur qilib kuzgi shudgorlashning afzalligini isbotlab berdilar. Begona o'tlar bir vaqtda kamaytirilgani holda chuqur haydalgan dalalarda yuza haydalgan dalalarga nisbatan sholi hosili 10-20% ortiq bo'lgan. Kuzda haydalgan dalalarda begona o'tlar anchagina kamayadi. Sholi hosili esa 15-25% oshgan.



***4-rasm. Yozda kuzgi bug'doydan so'ng haydash (sifatsiz o'tkazish)***

Bahorikor yerlarni beda ekish uchun tayyorlash chimqirqarli plug bilan kuzgi shudgorlashdan boshlanadi. Ekindan oldin yer 5-6 sm chuqulikda kultivatsiya qilinadi so'ngra molalanadi. Beda bahorda haydalgan yerlarga nisbatan kuzda shudgor qilingan yerlarda yaxshi unib chiqishi aniqlangan. Kuzgi ekinlar ekiladigan ang'iz ekishdan 15-20 kun oldin haydalishi kerak. Haydashdan oldin lushchilnik bilan yumshatiladi. Quruq yerni yozda haydash natijasida hosil bo'ladigan palaxsalarini maydalash uchun sixli g'altak tirkalgan plug, og'ir



valokushalar, kesik diskli lushchilniklardan foydalaniladi. Hosil yig'ishtirib olinayotgan vaqtda ang'iz bir yo'la haydalsa tuproq sifatli ishlanadi. Bunda palaxsa 2-3 marta kam hosil bo'ladi, ko'p yillik o'tlar keskin kamayadi. Bir yo'la ang'izni haydash imkoni bo'lmasa, darhol uni lemexli PL-5-25, yoki yuza yumshatgich ploskorez XP-2-250, AP-7,5 va boshqa qurollarda 10-12 sm chuqurlikda yumshatish zarur. Shundan keyin yer plugda haydaladi.

*In districts with strong winds, plowing low-growing plots of perennial weeds with a plow without a toppe will work well. E.I.Zaurov, U.Khojabekov wrote that the wheat crop increases by 20-23% when driven by this method, and the lalmikor farming dog by 8-12%. Ploughed and irrigated land from old is ploughed mainly in autumn for rice planting. The workers of the Uzbek rice dog have proven the advantage of autumn plowing by making the ground deep compared to surface plowing. In fields that were driven deep while the weeds were reduced at the same time, the rice yield was 10-20% higher than in fields that were driven from the surface. In the Fields plowed in the fall, weeds are greatly reduced. Rice yields increased by 15-25%.*

*The preparation of springicor land for planting alfalfa begins with autumn plowing with a pinch of plow. Before planting, the Earth is cultivated in a 5-6 cm pit and then molded. Bede has been found to germinate well on fall-plowed land compared to spring-plowed land. Autumn crops should be evicted 15-20 days before planting the planted stallion. Softened with lushchilnik before driving. Six-reel traction plough, heavy valocushes, cut-disc lushchilniks are used to grind the palaxas produced by plowing dry land in summer. When the harvest is harvested, the soil is processed qualitatively if the rootstock is driven away. In this case, the palaxsa is formed 2-3 times less, perennial grasses are sharply reduced. If it is not possible to drive a lump, it is necessary to immediately punch it at a depth of 10-12 cm in lemex PL-5-25, or surface softener ploskorez XP-2-250, AP-7.5 and other weapons. The land was then ploughed.*

Sug'oriladigan yerlarda takroriy ekin ekish uchun somon yig'ishtirish ang'iz sug'oriladi. Yer yetilishi bilan plugga "zig-zag" borona taqilib yer haydaladi. O'zbekistonning tog'li va tog' oldi vodiylarining ko'p qismida lalmikor dehqonchilik qilinadi. Bu yerda asosan g'alla yetishtiriladi. Hosildorlik yog'in-sochin suvlarini to'planishi, saqlanishi va taqsimlanishiga bogliq. Qurg'oqchiliklar bu yerda dehqonchilik ishlarini ancha murakkablashtiradi, shuning uchun ham bu yerda o'tkaziladigan tadbirlar yog'in-sochin suvlarini to'plash va saqlashga qaratilishi kerak.

Ang'izni haydab yil davomida ekin ekilmay, maxsus ajratilgan dala toza shudgor deyiladi. Shudgorda yil davomida yoki yozning yarmigacha ekin ekilmay faqat begona o'tlarni yo'qotish uchun quruq ishlov berib turiladi. Ishlov berish

natajasida shudgor yumshoq va begona o'tlardan holi bo'ladi, unda nam ko'proq to'planadi oziq moddalar ko'payadi, ekinlarning kasallik va zararkunandalari kamayadi. Toza shudgor ertagi, o'rtagi, kechki va band shudgorlarga bo'linadi. Jizzax viloyatidagi G'allachilik ilmiy tekshirish institutining dalalarida toza shudgorga ekilgan bug'doy hosili 14-22 st/ga ni, ang'izda 4-8 st/ga ni tashkil etgan. Lalmi yerlarni shudgorlashning eng qulay muddati tekislik zonada martning ikkinchi yarmi, tekislik adir zonada martning oxiri – aprelning birinchi yarmi, tog' oldi zonasida aprel va tog'li zonada aprelning oxiri va mayning boshlari hisoblanadi. Toza shudgor yoz davomida 2-3 marta 10-12 sm chuqurlikda kultivatsiya qilinadi. Bu ish KRN-3,5, KPNA-3, KPN-4,3, KP-4 A, PL-5-25, PPL-10-25 rusumli kultivatorlar va KPL-2-150 rusumli ploskorezlar bilan ishlanadi. Ekin hosili yig'ishtirib olish bilan bir paytda yer haydalsa uni qora shudgor deyiladi. Qora shudgor lushchilnik bilan 10-12 sm yumshatib keyin 20-22 sm chuqurlikda haydaladi. Qora shudgor O'zbekistonda yaxshi samara bermaydi. Shuning uchun qo'llanilmaydi.

*For repeated planting of crops on irrigated lands, straw harvest which is watered with prunes. As the ground matures, a "zig-zag" boron is worn on the plug and the ground is plowed. Lalmikor is farmed in most of the mountainous and mountainous valleys of Uzbekistan. Wheat is mainly grown here. Productivity depends on the accumulation, storage and distribution of precipitation-sochin waters. Droughts greatly complicate farming, so activities here should focus on the collection and storage of rainwater. Plowing the rootstock is called a specially allocated field clean plow, not planted throughout the year. The Plough is dry-processed throughout the year or until half of the summer without cultivation only to remove weeds. In cultivation nataja, the dew is soft and weed-free, in which moisture accumulates more nutrients, and diseases and pests of crops are reduced.*

*A pure plow is divided into a plow, a middle, an evening and a busy plow. The wheat crop planted in pure dew in the fields of the Institute of agricultural scientific investigation in the Jizzakh region was 14-22 st/ga, In angiz it was 4-8 st/ga. The most favorable period for plowing the land is the second half of March in the lowland zone, the end of March in the lowland zone – the first half of April, April in the mountainous zone and the end of April and the beginning of May in the mountainous zone. A clean plow is cultivated 2-3 times during the summer to a depth of 10-12 cm. This work is done with cultivators of KRN-3,5, KPNA-3, KPN-4,3, KP-4 a, PL-5-25, PPL-10-25, and PLOSCOREZES of KPL-2-150. A crop crop is called a black plow if the Earth is driven away at a time when the crop is harvested. Black plow is driven to a depth of 20-22 CM after loosening 10-12 cm with lushchilnik. Black plow does not work well in Uzbekistan. Therefore, it does not apply.*

**Band shudgor.** Toza shudgorga chopiq talab etadigan biror ekin ekilgan yer band shudgor hisoblanadi. Qator oralariga ishlov berilganda begona o'tlar yo'qotib turiladi. Band shudgor toza shudgor bilan navbatlanib turishi yaxshi samara beradi. Band shudgor yog'in miqdori yetarli bo'lgan tog'li va tog'oldi zonalarda yaxshi natija beradi. Lekin toza shudgor o'rnini bosa olmaydi. Erta bahorgi band shudgorga ko'k no'xot, xashaki no'xot, no'xot, kungaboqar, yasmiq, maxsar: o'rta bahorgiga kungaboqar, oqjo'xori, sudan o'ti, ayrim joylarda makkajo'xori; kech bahorgiga oqjo'xori, makkajo'xori, sudano'ti, kungaboqar, poliz ekinlari ekiladi. Yerlarni shudgorlash ekin ekishga tayyorlash, ya'ni chizellash, boronalash, mola bosish ishlari tuproq-iqlim sharoitidan kelib chiqib kerakli tartib va muddatda o'tkaziladi. Sideratlar ham band shudgor hisoblanadi.

**Yerni ishlash sonini minimallashtirish.** Ma'lumki dalada traktor agregatlarining ko'p marta yurib o'tishi tufayli tuproq strukturasi buziladi, haydalma qatlam va uning osti zichlashib qoladi. Tuproqning suv-fizik xossalari yomonlashadi. Buni oldini olish uchun yerni ishlash sonini kamaytirish talab etiladi. O'zbekiston PITI ma'lumotlariga ko'ra yerni ishlash sonini kamaytirish quyidagi yo'nalishlarda olib borilishi mumkin.

- 1.Yerni haydash chuqurligini tabaqalashtirish.
- 2.Yerga asosiy ishlov berishda haydalma qatlamning uvoqlanishini yaxshilaydigan va dalaning tekis bo'lishini ta'minlaydigan samarali qurollardan foydalanish.
- 3.Texnikaning bir yurishida bir necha ishni bajarish.
- 4.Traktorni bir yurib o'tishida zarur ishlarni bajaradigan kombinatsiyalashtirilgan agregatlardan foylanish.
- 5.Kultivatsiya va boshqa ishlovlar sonini kamaytirish.

*Busy plough. A busy plough is the land on which a pure plough is planted, which requires a plough. Weeds are lost when treated between rows. The fact that a busy plow alternates with a clean plow pays off well. Busy plows do well in mountainous and mountainous zones with sufficient precipitation. But a clean plow cannot replace it. Early spring busy plums include Blue peas, khashaki peas, peas, sunflowers, lentils, mahsar: mid-spring sunflower, Capricorn, sudan grass, in some places corn; for late spring, crops of Capricorns, corn, sudanotis, sunflowers, melons are planted. The preparation of land plowing for cultivation, i.e. plowing, boroning, trowel printing, is carried out in the necessary order and time depending on the soil-climatic conditions. Siderates are also a busy plough.*

*Minimizing the number of Earth work. It is known that due to the multiple walks of tractor aggregates in the field, the soil structure is broken, the plowing layer and its subsoil become denser. The water-physical properties of the soil deteriorate. To prevent this, it is required to reduce the number of land workings.*

*According to the pit of Uzbekistan, the reduction in the number of workings of the land can be carried out in the following directions.*

- 1.Stratification of the depth of driving the Earth.*
- 2.The use of effective weapons in ground main processing that improve the plastering of the plowing layer and ensure that the field is level.*
- 3.To do a few things in one walk of the technique.*
- 4.Foiling from combined aggregates that perform the necessary work on one walk of the tractor.*
- 5.Reducing the number of cultivation and other processing.*

## GLOSSARY ( ГЛОССАРИЙ )

Atamaning nomlanishi			Atamaning ma'nosi
O'zbek tilida nomlanishi	Rus tilida nomlanishi	Ingliz tilida nomlanishi	
Dehqonchilik	Земледелие	Agriculture	Ekinlardan sifatli va yuqori hosil olish uchun parvarish qilish usullari agrotexnologik jarayonlar
Haydalma qatlam	Пахотный слой	Topsoil	Tuproqning yuza ishlov beriladigan faol qatlami
Tuproq strukturasi	Структура почвы	The soil structure	Mayda chang zarrachalarini bir-biri bilan yopishib, har xil, kattalikdagi agregatlar (kesaklar) hosil qilishi
Dala nam sig'imi	Полевая влагоёмкость почвы	Field capacity of the soil	Tuproq kapillyarlarida uzoq muddat saqlanadigan suv miqdori
Tuproqning havo rejimi	Воздушный режим почвы	Air regime of the soil	Ma'lum vaqt ichida tuproqqa havosi tarkibining o'zgarishi
Tuproqning issiqlik rejimi	Тёпловой режим почвы	Thermal regime of the soil	Tuproq tarkibida issiqlikning o'zgarishi
Yerga ishlov berish	Обработка почвы	Tillage	Shudgor qilish, tekislash, boronalash, kultivatsiyalash, chizellash, mola bosish kabi ishlar tushuniladi
Shudgor	Вспашка	Plowing	Yerga ma'lum chuqurlikgacha ag'darib ishlov berish



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