**GULISTAN STATE UNIVERSITY**

# A GENERAL DESCRIPTION OF CEREALS, DEVELOPMENT CONDITIONS.
# DONLI EKINLARNING UMUMIY TAVSIFI, RIVOJLANISH SHAROITI.

**Gulistan - 2025**

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Ushbu ma’ruza matni O‘simlikshunoslik fanidan o‘tiladigan “**Donli ekinlarning umumiy tavsifi, rivojlanish sharoiti**” mavzusiga bag‘ishlangan bo‘lib, unda donli ekinlarning axamiyati,. umumiy tavsifi, rivojlanish davrlari **va** organogenez bosqichlari to‘g‘risidagi ma‘lumotlar ingliz va o‘zbek tillarida bayon etilgan hamda asosiy atamalar izohi–glossariy keltrilgan. Ma’ruza 2-bosqich Agrokimyo va tuproqshunoslik, Issiqxona, Osimliklarni himoya qilish va 4 -bosqich Agrokimyo ta’lim yo‘nalishlari talabalariga mo‘ljallangan.

**Taqrizchilar: Ingliz adabiyoti kafedrasi mudiri Fazilov A**
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# A GENERAL DESCRIPTION OF CEREALS, DEVELOPMENT CONDITIONS.

# DONLI EKINLARNING UMUMIY TAVSIFI, RIVOJLANISH SHAROITI

**Purpose:** Students dine crops role, general description, development period and ophases rganogenez give information about

**Maqsad:** Talabalarga donli ekinlarning axamiyati, umumiy tavsifi, rivojlanish davrlari va organogenez bosqichlari to‘g‘risida ma’lumot berish

**PLAN:**

1. General description of cereals
2.The period of development of cereals
3.Organogenez stages.

**REJA:**

1. Donli ekinlarning umumiy tavsifi
2.Donli ekinlarning rivojlanish davrlari
3.Organogenez bosqichlari.

## 1. General description of cereals

The main network donchilik plantingtheproducts ofhtaking less nutritiousq-huntingthema athsulot, and light industry qnetwork, muchof theforage and livestock also provides raw materials for our products. Planting in donchilik to himself as hos features: seasonality of certain technological measures in a certain period of transfer, tashqi that is constantly changing conditions. Donchilik qmy adi, with the emergence of plants, comes thqqan. Dehqonchilikni ilkbor grain crops were grown, starting development of what he sees. Initially, dehqon leadership Iroq, Hindiston, China, syria, egypt, Mexico, Boliviya in central asia, have been developed. Dehqon leadership development during this period ofg'doy as there are weeds among crops (barley, rye, oats) madaniylashgan, types of crops grown grain has been increased.

The main human food that are necessary for most cereal-flour and bread products. The bread by man o',ylab found is the greatest blessing. Non-cocktail of our people, our ancestors, is the work of completion of construction. Dear in the world, from bread, bread not from the thing itself invaluable. Who is the bread today with the passing of robert connecting early is a great blessing. Nothing is bosolmas place bread every day, man, it is necessary to.

The first years of the country's independence from cereals, in particular, made a decision to increase the area of wheat crops.

We are in the territory of our state to give high yield of wheat and other cereals and the development of good If there is no doubt known from the history of farming because it will be noted that with the cultivation of wheat, also thousands of years b 11.e. dealt with before. Which can hold up to the 20s as well as several grain silos( warehouses), a grain of wheat and barley, the grain was found in the bronze scraper prepared and rakes. Our ad is up , which is 1 thousand years ago during the period of the iron age-the major crops wheat fields of irrigation facilities built and extended.

The world's most cereals can be seen from the following table that has been spread (1.1-table)

Grain uzbekistan achieved independence. Shis required to come with the grain until it was time proceedings charles thousand of the population. Now on the territory of uzbekistan is filled with a blend of grain.

The grain inalso to grow and development, livestock same as that of hat qimmatli yprovide fodder, ywhile light industry hb omashyogao'present cautiousjini qondirish it is necessary. Also the countryof the cultivated grain quality indicators you should try to be the requirements of international standards.

**Table 1.1**

**The mode of cereal cultivation in the world (20 RESOLUTION2information on year 0**)

| **Crop type,** | **crop area, ming. ga** | **Yield, s/ha** | **Total grown mln.t** |
|---|---|---|---|
| **Wheat** | 215180 | 27,06 | 582223 |
| **Rice** | 153458 | 38,63 | 592873 |
| **Corn** | 137549 | 43,36 | 596412 |
| **Barley** | 55698 | 24,40 | 135915 |
| **Millet** | 36161 | 7,52 | 27186 |
| **Rye** | 9896 | 29,75 | 20532 |
| Oats | 14416 | 18,11 | 26115 |
| Oat | 42805 | 13,91 | 59536 |

To meet the requirement of the population rather than to the data given for food grain crops inthe expansion of cultivation required. This increase in yield of grain crops in its place associated with the problem in theis closely related to solves. The increase in production or an increase in grain yield to be related to

the expansion of cultivated area. The expansion of cultivated area has its limits, so we should try to increase the yield.

You can complete only when we manage to increase plant growth and yield development.

The biological basis for the formation of conditions. The appearance of the plant will reflect its genotype and environmental conditions in the regions of its formation. During the period of evolution, natural selection, biological indicators of living conditions between the main factors is the region on his requirements. Therefore, it is important to know the conditions of formation plant biology.

12 n. i. Vavilov and other scientists determine the center of origin of the crop.

1.Chinese-japanese - china, korea, japan, soft wheat , millet, and other crops marjumak of land.

2.Indonesia-south china - oats, sugar cane, fruit and vegetable crops birthplace.

3.Australia- rice, cotton, alfalfa, the birthplace of tobacco.

4.India- rice, round grain wheat, cotton types, the birthplace of.

5.Middle Asia-tajikistan, uzbekistan, afghanistan-no'xatning of lentils, if, twine, maxsar, the birthplace of melon.

6.The front Asia - the mountain parts of turkmenistan, Iran, Transcaucasia, asia minor, wheat, barley, peas, and others.

7. Mediterranean sea-this is Egypt, Mystery, Palestin, greece, italy-oats, wheat sebarga, beets and other types of crops.

8. Africa centre - the type of cotton, millet, sorghum, rice and legumes were born.

9. Siberian-Ovropa center-linen, sebarga, fruit and the birthplace of other crops.

10. Mid america center - this is mexico, guatemala, honduras, Panama-corn, loviyaning, cotton, potatoes, batatning, the birthplace maxorkaning.

11.South America - the center of the potato, tomato, tobacco, barley, maize space.

12.North America-the center of barley, lyupin, vegetables and other crops come from

The cultural center of origin of the biological properties of these crops crops will lead to to know know and can create major modern breeding technologies of crops on this basis

## 1. Donli ekinlarning umumiy tavsifi

Donchilik o‘simlikshunoslikning asosiy tarmoqlaridan biri bo‘lib, aholini to‘yimli oziq-ovqat mahsulotlari, yengil sanoatning bir qancha tarmoqlari uchun xomashyo va chorvachilikni em-xashak bilan ta’minlaydi. Donchilikda o‘simlikshunoslik kabi o‘ziga hos xususiyatlari mavjud: mavsumiyligi, muayyan texnologik tadbirlarni ma’lum muddatlarda o‘tkazish, tashqi sharoitni doimo o‘zgarib turishidir. Donchilik qadimdan, o‘simliklar paydo bo‘lishi bilan, kelib chiqqan. Dehqonchilikni rivojlanishi ilkbor donli ekinlarni yetishtirishdan boshlangan. Dastlab, dehqonchilik Iroq, Hindiston, Xitoy, Suriya, Misr, Meksika, Boliviya, Markaziy Osiyoda rivojlana boshlangan. Dehqonchilik rivojlanish davrida bug‘doy orasida begona o‘t sifatida uchrab turgan o‘simliklar (arpa, javdar, suli) madaniylashib, donli ekinlarning turlari ko‘payib yetishtiriladigan bo‘lib kelgan.

Donli ekinlar inson uchun eng zarur bo‘lgan asosiy oziq ovqat-un va non mahsulotlarini beradi. Non inson tarafidan o‘ylab topilgan eng buyuk ne’matdir. Non-xalqimiz mexnati, ajdodlarimiz mehnati mahsulidir. Dunyoda nondan aziz, nondan bebaho narsaning o‘zi yo‘q. Non o‘tganni bugun bilan, bugunni erta bilan bog‘lovchi buyuk bir ne’matdir. Nonni o‘rnini xech narsa bosolmaydi, u har kuni inson uchun zarur.

Vatanimiz Mustaqilligining birinchi yilidan boshlab donli ekinlarning, jumladan, bug‘doyning ekin maydonlarini ko‘paytirish to‘g‘risida qaror qabul qilingan.

Bizning davlatimiz xududida bug‘doy va boshqa donli ekinlar yaxshi rivojlanishi va yuqori hosil berishga shubxalanmasa ham bo‘ladi, chunki dehqonchilik tarixidan ma’lum bo‘lishicha bug‘doy yetishtirish bilan bundan 11 ming yil b.e. oldin shug‘ullangan. Shuningdek 20s gacha sig‘adigan bir nechta don elevatorlari( omborlari), bug‘doy doni va arpa, don kirg‘ichi va bronzadan tayyorlangan o‘roqlar topilgan. Bizning eramizgacha bo‘lgan 1 ming yil oldin temir asr davrida-yirik irrigatsiya inshoatlari qurilgan va bug‘doy ekin maydonlari kengaytirilgan.

Donli ekinlar dunyoda eng ko‘p tarqalgandir, buni quyidagi jadvaldan ko‘rish mumkin (1.1-jadval)

O‘zbekiston g‘alla mustaqilligiga erishdi. Shu vaqtgacha aholiga talab qilinadigan don ming mashaqatlar bilan chetdan keltirilar edi. Endi O‘zbekiston hududida xirmonlar don bilan to‘lib turibdi.

Don yetishtirishni bundan keyin xam rivojlantirish, shu singari chorvachilikni ham qimmatli yem-xashak bilan ta’minlash, yengil sanoatni esa homashyoga bo‘lgan extiyojini qondirish zarur. Bundan tashqarii

yetishtirilayotgan donni sifat koʻrsatkichlari xalqaro standart talablariga javob beradigan boʻlishi uchun harakat qilish kerak.

**1.1-jadval**

**Dunyoda don etishtirish holati (FAO 2020 yil ma'lumoti boʻyicha)**

| **Ekin turi** | **Ekin maydoni, ming. ga** | **Hosildorligi, s/ga** | **Umumiy etishtirilgan mln.t** |
|---|---|---|---|
| **Bugʻdoy** | 215180 | 27,06 | 582223 |
| **SHoli** | 153458 | 38,63 | 592873 |
| **Makkajoʻxori** | 137549 | 43,36 | 596412 |
| **Arpa** | 55698 | 24,40 | 135915 |
| **Tariq** | 36161 | 7,52 | 27186 |
| **Javdar** | 9896 | 29,75 | 20532 |
| Suli | 14416 | 18,11 | 26115 |
| Joʻxori | 42805 | 13,91 | 59536 |

Berilgan ma'lumotlarga qaraganda aholini oziq- ovqatga boʻlgan talabini qondirish uchun don ekinlarini yetishtirishni kengaytirish zarur. Bu esa oʻz oʻrnida don ekinlarining hosildorligi ortishi bilan bogʻliq muammoni yechishi bilan chambarchas bogʻliq. Don ishlab chiqarishni ortishi hosildorlikni ortishiga yoki boʻlmasam ekin maydonini kengayishiga bogʻliq. Ekin maydonini kengaytirishni oʻz chegarasi bor, shuning uchun hosildorlikni oshirishga harakat qilishimiz kerak.

Hosildorlikni oshirish uchun oʻsimlikni oʻsish va rivojlanishini toʻgʻri boshqarganimizdagina bajarish mumkin.

Biologik asoslarni shakllanish sharoiti. Oʻsimlik koʻrinishi va uning genotipi ekologik mintaqalar sharoitida uning shakllanishi aks etadi. Evolyusiya davrida tabiiy tanlash, biologik talablar koʻrsatkichlari boʻyicha mintaqalar oʻrtasida uning yashash sharoiti asosiy omillar boʻlib hisoblanadi. Demak, oʻsimlik biologiyasini shakllanish sharoitini bilish muhimdir.

N.I.Vavilov va boshqa olimlar ekinlarning 12 ta kelib chiqish markazini aniqladi.

1.Xitoy-yapon - bu Xitoy, Koreya, YAponiya-yumshoq bugʻdoy , tariq, marjumak va boshqa ekinlarni vatani.

2.Indoneziya-Janubi Xitoy- suli, shakar qamish, meva-sabzavot ekinlaryi vatani.

3.Avstraliya- sholi, gʻoʻza, beda, tamakini vatani.

4.Hindiston- sholi, yumaloq donli bugʻdoy, gʻoʻza turlari vatani.

5.O‘rta Osiyo-bu Tojikiston, O‘zbekiston, Afg‘oniston-no‘xatning yasmiqning, mosh, kanop, maxsar, qovunning vatani.

6.Old Osiyo- Turkmanistonning tog‘ qismlari, Eron, Kavkazorti, kichik Osiyo-bug‘doy, arpa, no‘xat va boshqalar.

7. O‘rta yer dengizi-bu Misr, Siriya, Palestin, Gretsiya, Italiya-suli, bug‘doy, sebarga, lavlagi va boshqa ekin turlari.

8. Afrika markazi- g‘o‘za turlarining, tariq, jo‘xori, sholi va dukkaklilarning vatani.

9. Sibir-Ovropa markazi-zig‘ir, sebarga, mevalilar va boshqa ekinlarning vatani.

10. O‘rta Amerika markazi- bu Meksika, Gvatemala, Gonduras, Panama-makkajo‘xorining, loviyaning, g‘o‘zaning, kartoshkaning, batatning, maxorkaning vatani.

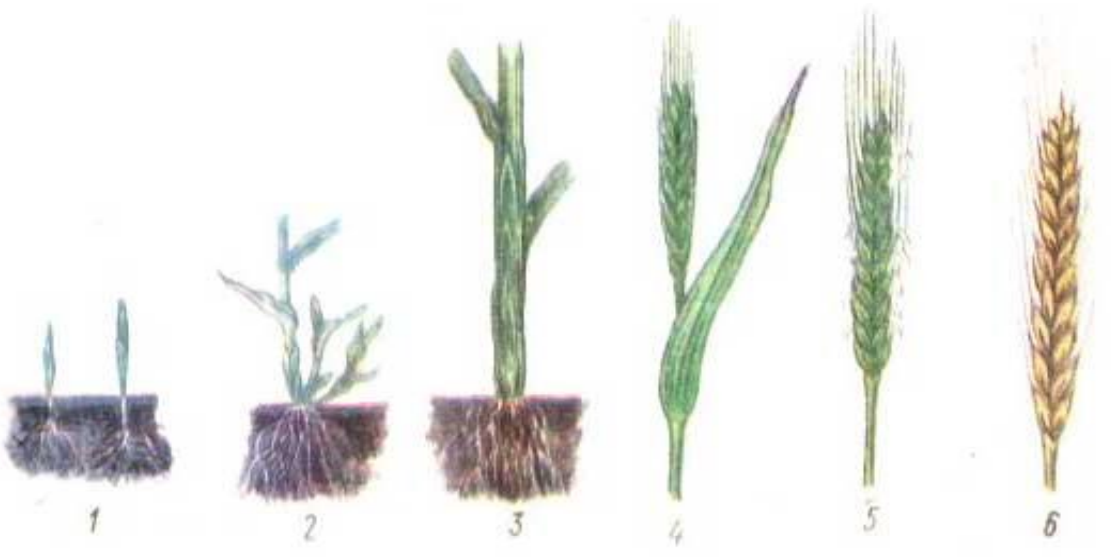
11.Janubiy Amerika markazi - kartoshka, tomat, tamaki, arpa, makkajo‘xorining makoni.

12.SHimoliy Amerika markazi-arpa, lyupin, sabzavot va boshqa ekinlar kelib chiqqan

Madaniy ekinlarning kelib chiqish markazlarini bilish bu ekinlarning biologik xususiyatlarini bilishga olib keladi va shu asosda ekinlarni parvarishlashning zamonaviy texnologiyalarini yaratish mumkin

## 2.The period of development of cereals

It is the process of allowing you to determine the productivity of plant growth and development. **Growth**- this is the increase of dry matter. **Development** - plant of its type in the preservation of the body is formed, the process is his main biological function.The planting of grain crops is of great importance in the process of growth and development, make up the foundations of the grain shape.Different steps in the development of grain crops will take. A different take on the group in the group mainly grain crops on the border.Any night of the large operation to know the stages of development of cereals, adapted to obtain high yields of agronomic konkret allows you to conduct timely and effective measures. (nitrogen fertilizer, micronutrients application, applying substances to grow and settings available fungitsid and full ioc). Plant development is characterized by the emergence of new bodies in the period of the exchange.




**1-picture. Wheat is in the development phase.**

***1* - Germination*, the 2-tuplab be a 3 - wrapping stem, 4-boshoqlash, 5 – be paced, 6-have matured.***

**Germination.** However, seeds for sprouting water, heat and kislorod be required a certain amount of shares. Water the seeds and hawthorn to the activity of the enzyme weightloss product. Murtagi pants and endosperm of the grain different amounts of water, so in return dobigi grain burst. Enzymes are complex substances (eg', keep add-ons to fail, starch) for a simple water-soluble substance will turn into.

The seeds of grain crops and the amount of water required to have sprouted out of the product which is different stripes of: wheat — 47-48, rye — 58-65 barley — 48-57, oat — 60-76, corn — 37-44, millet and sorghum — 25-38 % ( in relation to weight).

The effects of temperature on water absorption speed will remain. Even at a very low temperature grain crops sprouted chiqgets a this temperatureg'for doy and barley 1-3° warm, corn chorus and spoken. for 8-10°, juxory and rice for 10-12°. Donlee o'quickly sprouted simlik of stqitemperature for the Italian 10-21° bo'lish the need. Germination speed urug'gweightloss also,. flour grain bo'lsa, the water quickly and pants is good bruise outadi. seeds ko 'st karibqioriginally in Italian the primary roots o'mo started, then the stem is far o'ch sibiqwas a start. First was chinbarg-gan was beginning maysalanishni by saving in qis twisted. Conditions kulay - bo'lsa ypyg' after planting after 5-7 days o'after moving, the grass is ko'st karibqa-di. Germination per flour iod of 10-12 days lasts. At the end

of the period o'simlik 2-4 units chinbarg advanced stripes and the length of the root murtak-stained 30-35 cm.pm bdieadi.

The color of the lawn o'different kinds of stripes he already simlik: 6g'doy in green, rye in - purple color, in oats - light green barley - ko'men-gray, tariqshaped plants - green in color bo'ladi.

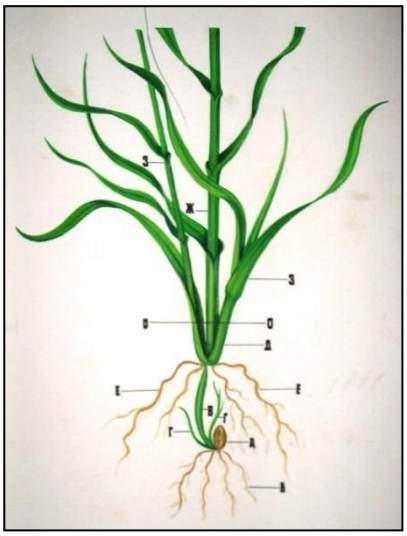
**The tillering.** New methodology'poyalarning appear shimcha bo'lish of the tillering indicates the beginning of the period. Methodology'of the stem underground shimcha bo'g'innyu ing mostqform b orgisidano'ladi usually 1-3 cm from the bottom of the page b lando'ladi. Ana bo'g'in - b tuplanishsonI called.

The tillering nest o'simlik most important of thename, in this kismi food. substances to'plab is the root system of baquvvatligi, soapqat qurg'oqb chilik resistant to thiso'g'inni hisshtoe workg'liq bo'ladi. The tillering bo'g'nest nokulay damaged in the impact of conditions o'b simlik dieo'ladi. The tillering bthiefat king side and secondary roots in the development of thisnadi. Secondary roots in the soil ofq's yuqkismi places in the ori. Give birth good 40-50 cm usib its roots in this period to up will remain.

The number of stems of a plant developed in bush will be different, the biological properties of this plant, temperature , water and feed the supply leads depends on. A bush plant stem was developed in the average of the number *of total* the tillering is called. This plant the primeq is out-of-gan poyalarning tuplanish to the total number of karaganda is less than would. Head over to the middle of the stem was in a bush chitsargan the number productive farming is called. O'b this is different to the type of simliko'ladi: autumn korn 3-6 units in crops, barley and oats 2-3 units, this spring-loaded g'would doy than 1-2 in. Ch Tuplanish periodo'general, if k goes out tuplanish zilama maxsuldor tuplanish is reduced. Earing period 5° o'teeth can be. Most kulay temperature for this period is 10-15°. The increased temperature also goes down, osimlik tuplab quickly, however spring earing is reduced. earing good crops of grain, water, feed elements bilan tula hike should be provided. Earing period takes 20-25 days in general. The grain of the period was different in the plant earing head, that is, at the time of the exodus additionally stem leaves 3-4 units of rye and oats, barley and bug'doyda 3 leaves, millet units 5-6 leaves, corn leaves, corn leaves and 7-8 6-7 units when the units will appear.

In the first group, which develops into the stem ko'shimcha tuplanish grain crops earlier in the period, then the secondary roots will appear. The secondary roots are formed earlier in crops Tariqsimondi. After ko'shimcha stem develops. The water requirements of the crops of grain is related to the same things would be any different.

The number of stems in a square meter of 350-400 general maxsuldor if this were to grow from 20-30 hectares grain provides s. In most conditions up to a square meter of the number of maxsuldor kulay poyalarning far 700-800 bo'lish of it.



**Doy of steam tuplab be**:
1-grain; 2-murtak roots;
3-tuplanish toe 'g 'accounted for;
4-methodology 'shimcha roots;
5-the main stem;
6-methodology ' - stem side shimcha
o-o-on the surface of the soil

**flute winding** — this space unit, or stem growth and form organs generativ be extended. During this period the unit from the unit interval be extended to highly developed plant bilan begins. The first tier is the range of which requires the growth of 5-7 days. Average will cease to grow after 10-15 days, and then extended the range of the second tier began. Plant growth and flowering was tuxtab when you start. This period also takes 20-25 days. Daily low in cereals grow taller 3-5 cm, with sorghum in makkajo'hori 8-12 cm.

**Cob or Cob** — stem wrap during the period begins. Flower leaf package yuqorigi the beginning of the period drew half of the record with the appearance of shares. Boshoqda on its formation, accumulation and development of stem wrap in the period related to feeding, with nitrogen phosphorus ratio should be on. This period takes about 10-15 days.

***Flowering*** — home typically flowering starts after he was pulled over, the difference in an average of 2-3 days. with. Barley crops blooming before the

Conditions are favorable-if seeds after planting

leaves pulls the head kini then it was over. Rye boshoqlanishdan 8-10 days later while blooming.

Grain crops pollinated karab characteristics are divided into two groups.

1) o'zo'zidan pollination o'this simlikg'doy, barley, oats, rice, spoken.;

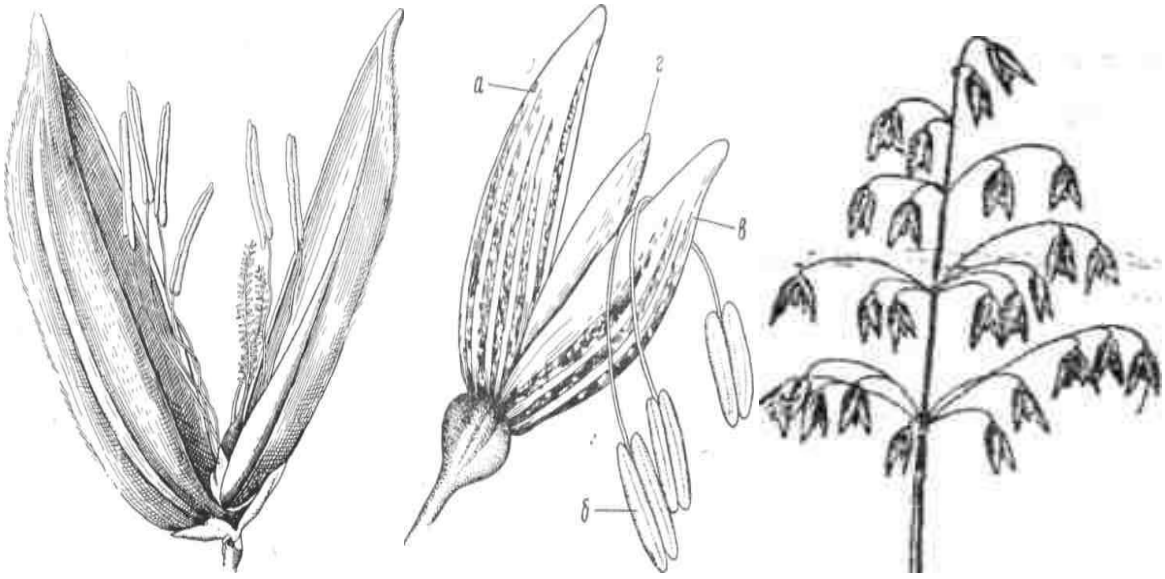
2) charles pollination o'the simlik — rye, makkajoo'j chorus ando'chorus.

confidential pollination o'flowers simlik kobi think the factor is spectacular iq blooming in the position. However, air in thehot and uru, bo'this lsa o'flowers simlikthe pros flower theobiof theworld 's hungrybirths in the case of ro'gives y. Cross-pollination in plants kobiqlari the flower is open, the dust is spread using the wind.

Blooming corn will ro'vak than she said 2 days ago. Dust in the wind by using open, she said. tumshukchalariga falls. The powder she said, tumshukchalariga of the threads are flying, it falls to the females of the flower and fertilization tuguncha. Artificial pollination can increase crop of corn.

Boshokli flowering of grain crops (wheat, barley, rye) is from kismi boshokni medium. Part of the major spike in the medium grain develops. Ruvakli from frost crops (oats, rice, thus., oat) is from the flowering part of ro'vak uchki, so in this part well-developed grain is striped. It Urugchilikda you need to consider.

*Flowering* period yoruglik from grain crops to temperature , moisture would be demanding. This period takes about 10-15 days.



**Boshoqcha ro'vaksimon gulto'plam rice corn(oats)**
**Fatherly flower gusto 'package**

***Ripening***. Grain crops ripening period of fruits from the three stripes that kuleshov n.: formation of the grain, the grain tulib and have matured. The

flowers are pollinated begins after the formation of the grain. Kobiqlari of the grain occurs, thus the requirements for 10-15 days head shares. 1000-grain weight in this period of 8-12 g bdieadi. Grain tuzilish — this frost starch to toe tuplabg'liq. This period of 20-25 days lasts, wet grain 37-40 % is striped.

The ripening of the grain plastic substances tuplab it don t beo'xtaganda begins. The ripening of the grain may in practice the period of three bo'linadi(1.2-table).

1) *the milk ripening period* of 10-15 days lasts for o'green color simlik bo'ladi, fqthe leaves at the bottom of sarg'ayadi. Milk grain o'suyun xshab totryingmore to'did it of moisture 50-51 % bo'ladi. Grain yieldi this period, the participation ing'ilmay was.

2) *the ripening period to Dumbul* — o'simlik sarg'ayadi,namligi 22-30 % bo'ladi. This period is 10-12 days lasts. Grain tula cooked grain to'remain the varieties that matured in dumbul collection.Before o's and rilgano'ngra grain to'la matured when electedg'ishtiriladi and used. In this period of grain, mother o'the sims is separated.

3) *Full ripening period* "- the plant turned completely yellow, while narrowing the grain kotmagan, humidity 14-19% of the time. Yigishtirib quickly generated in the same period should be taken. This period takes 8-10 days. When the grain would have unuvchanlik sobiliyatiga, tu\pain is ripe.

*The effects of unfavorable conditions.* Much to the formation and ripening grain effect will remain. Garmsel grain effect is quite early, however empty, biological and technological quality of grain and burishgan will decrease.

*Depending on the development stage of the plant, certain agronomic all it is necessary to conduct the event, so a big focus of the stage instead of the required conditions for formed to pass it to the yield should be taken into account, otherwise a decrease of productivity bo'zib if this conditions is observed.*

1.2-table.

**The period of the ripening of the grain.**

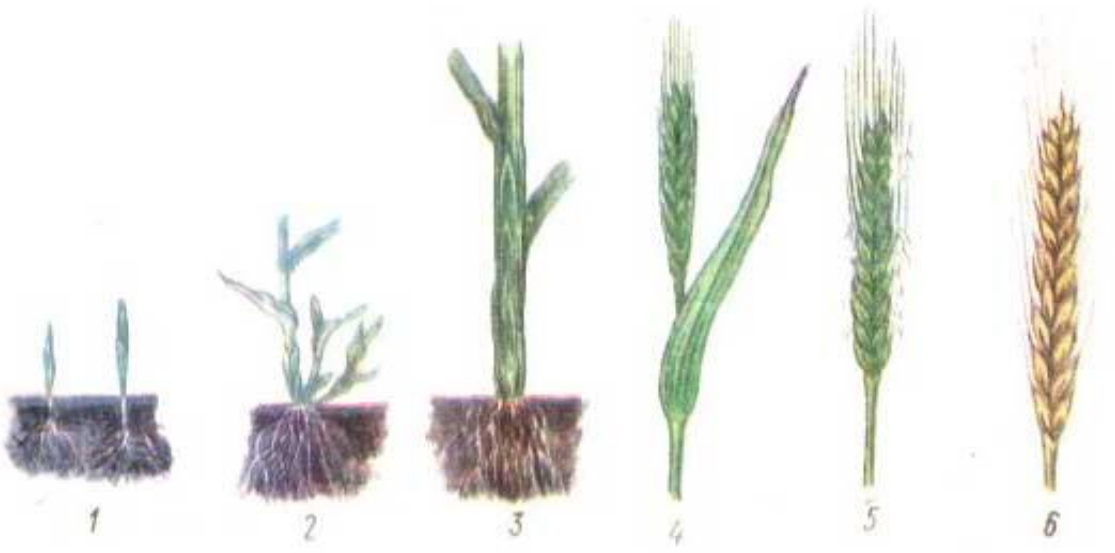
| *The stage of cooking* | *to distinguish symptoms* | *of grain humidity, %* |
|---|---|---|
| Milk-wax the final ripening | of the grain is soft, liquid, sutsimon, and the green leaves of the stem yuqorigi xali the unit leans xali quotes underda grain is crushed. | Around 50% |
| Wax, the ripening of the | stem and the leaves yellow,qars keep the pours of the joints to fail,the grain is crushed under the nail sticky | around 30% |
| Full at the onset of ripening. | Completely separated from the frost of the stem, with the grain, hard crush quotes –maydi | 17 around 20% |
| To complete the ripening | of the grain from the stalks, cobs is going to fall the light is broken, the grain can be crushed,not when it was on poyalarning qarsillaydi | 16-14% around |

## 2.Donli ekinlarning rivojlanish davrlari

O‘sish va rivojlanish o‘simlik hosildorligini belgilab beruvchi jarayonlar bo‘lib hisoblanadi. **O‘sish**- bu quruq moddaning ko‘payishi. **Rivojlanish**- o‘simlik organlarining hosil bo‘lish jarayoni bo‘lib o‘z turini saqlab qolishida o‘zining asosiy biologik vazifasini bajaradi.Donli ekinlarni ekishda o‘sish va rivojlanish jarayonlari katta ahamiyatga ega bo‘lib, don shakllanishining asosini tashkil qiladi.Don ekinlari rivojlanishida turli xil bosqichlarni o‘tadi. Don ekinlarda guruhlar bo‘yicha asosan guruh chegarasida bir xil o‘tadi.Donli ekinlarning aloxida rivojlanish bosqichlarining qanday kechishini bilish, yuqori hosil olish uchun moslashgan konkret agrotexnik tadbirlarning o‘z vaqtida va samarali o‘tkazilishiga imkon beradi. (azotli o‘g‘itlar, mikroelementlarni qo‘llash, fungitsidlar va o‘sishni sozlovchi moddalar qo‘llash va xoq). Rivojlanish davrlarining almashinuvi o‘simliklarda yangi organlarning paydo bo‘lishi bilan ifodalanadi.

***Maysalanish.*** Urug‘larning unib chiqishi uchun suv, issiqlik va kislorod ma’lum miqdorda bo‘lishi talab kilinadi. Suv urug‘ning bo‘rtishi va fermentlarning faoliyatiga bogliq. Donning murtagi va endospermi suvni har xil miqdorda shimadi, shuning evaziga don dobigi yoriladi. Fermentlar murakkab moddalarni (eg‘, onsil, kraxmal) suvda eriydigan oddiy moddalarga aylantiradi.

Don ekinlari urug‘larining bo‘rtishi va ko‘karib chiqishi uchun talab qilinadigan suv miqdori har xil buladi: bug‘doy — 47-48, javdar — 58-65, arpa — 48-57, suli — 60-76, makkajo‘xori — 37-44, tariq va jo‘xori — 25-38 % (ypyg‘ vazniga nisbatan).




**1-rasm. Bug’doyning rivojlanish fazalari.**

***1- maysa chiqishi, 2-tuplanishi, 3- nay o’rashi, 4-boshoqlashi, 5 – gullashi, 6-pishishi.***

Suvni shimish tezligiga harorat ta’sir kiladi. Don ekinlari juda past haroratda ham ko‘karib chiqa oladi, bu harorat bug‘doy va arpa uchun 1-3° iliq, makkajo‘xori va tarik. uchun 8-10°, juxory va sholi uchun 10-12°. Donli o‘simliklarining tez ko‘karib chiqishi uchun harorat 10-21° bo‘lishi kerak. Maysalash tezligi urug‘ga ham boglik,. Don unsimon bo‘lsa, suvni yaxshi shimadi va tez ko‘karib chikadi. Urug‘lar ko ‘karib chiqishida dastlab birlamchi ildizlari o‘sa boshlaydi, shundan keyin poyacha o‘sib chiqa boshlaydi. Birinchi chinbarg kurin-ganda maysalanishni boshlanganligi kayd qilinadi. Sharoit qulay - bo‘lsa ypyg‘ ekilgandan keyin 5-7 kun o‘tgach, maysalar ko‘karib chiqa-di. Maysalanish davri 10-12 kun davom etadi. Davrning oxirida o‘simlikda 2-4 ta chinbarg rivojlangan buladi va murtak ildizi uzun-ligi 30-35 sm.gacha bo‘ladi.
Maysalarning rangi o‘simlik turlariga darab har xil buladi: 6yg‘doyda yashil, javdarda - binafsha rang, sulida - och yashil, arpada - ko‘kish-kul rang, tariqsimon ekinlarda - yashil rangda bo‘ladi.

***Tuplanish.*** Yangi qo‘shimcha poyalarning paydo bo‘lishi tuplanish davrining boshlanishini bildiradi. Qo‘shimcha poyalar yer osti bo‘g‘inning eng

yuqorgisidan hosil bo‘ladi, odatda, yer betidan 1-3 sm pastda bo‘ladi. Ana shu bo‘g‘in - tuplanish bo‘g‘ini deb ataladi.

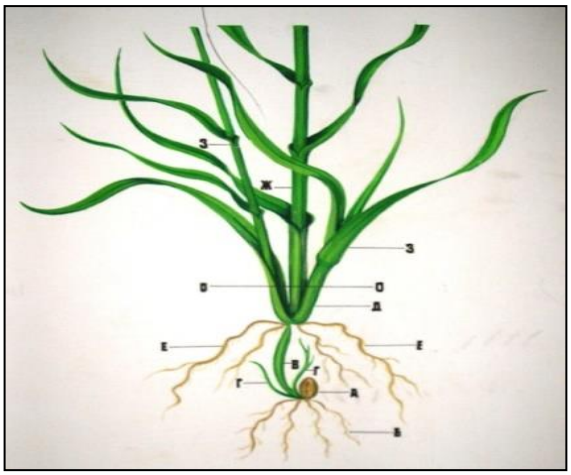
Tuplanish bo‘g‘ini o‘simliklarning eng muxim qismi hisoblanadi, bu kismda oziq. moddalar to‘planadi, ildiz tizimining baquvvatligi, sovuqda, qurg‘oqchilikka chidamligi bu bo‘g‘inning joylashishiga bog‘liq bo‘ladi. Tuplanish bo‘g‘ini nokulay sharoit ta’sirida shikastlansa o‘simlik nobud bo‘ladi. Tuplanish bo‘g‘inida yon shoxlar va ikkilamchi ildizlar rivojlanadi. Ikkilamchi ildizlar tuproqning yuqori kismida joylashadi. Murtak ildizlari bu davrda yaxshi usib 40-50 sm ni tashkil kiladi.

Bir tup o‘simlikda rivojlangan poya soni har xil bo‘ladi, bu o‘simlikning biologik xususiyatiga, haroratga , suv va ozuqa bilan ta’minlanishiga bog‘liq. Bir tup o‘simlikda rivojlangan o‘rtacha poya soni *umumiy tuplanish* deb ataladi. Bu o‘simlikda boshoq chikaradi-gan poyalarning soni umumiy tuplanishga karaganda kam buladi. Bir tupda boshok chitsargan urtacha poyalar soni *maxsuldor tullanishi* deb ataladi. O‘simliklarning turiga karab bu har xil bo‘ladi: kuzgi galla ekinlarida 3-6 ta, arpa va sulida 2-3 ta, baxorgi bug‘doyda 1-2 ta buladi. Tuplanish davri cho‘zilib ketsa umumiy tuplanish kamayib maxsuldor tuplanish kamayadi. Tuplanish davri 5° da o‘tishi mumkin. Eng kulay harorat bu davr uchun 10-15°. Harorat bundan oshib ketsa, o‘simlik tez tuplanadi, birok maxsuldor tullanishi kamayadi. Don ekinlari yaxshi tullanishi uchun suv, ozuqa elementlari bilan zam tula ta’minlangan bo‘lishi kerak. Umuman tuplanish davri 20-25 kun davom etadi. Don o‘simliklarida tuplanish davri har xil vaktda o‘tadi, ya’ni javdar va sulida kushimcha poyalar 3-4 ta barglar chikish davrida, arpa va bug‘doyda 3 ta barg, tariqda 5-6 ta barg, makkajo‘xorida 6-7 ta barg va jo‘xorida 7-8 ta barglar paydo bo‘lganda o‘tadi.

Birinchi guruhga kiradigan don ekinlarida tuplanish davrida avval ko‘shimcha poyalar rivojlanadi, keyin ikkilamchi ildizlar paydo bo‘ladi. Tariqsimon ekinlarda avval ikkilamchi ildizlar hosil bo‘ladi. So‘ng ko‘shimcha poyalar rivojlanadi. Donli ekinlarini suvga bo‘lgan talabining har xil bulishi shu xodisaga ham bog‘liqdir.

Umumiy maxsuldor poyalar soni bir kvadrat metrda 350-400 ta bo‘lsa, bu gektaridan 20-30 s don etishtirishni ta’minlaydi. Eng kulay sharoitda maxsuldor poyalarning soni bir kvadrat metrda 700-800 tagacha bo‘lishi mumkin.

**Bug ‘doyning tuplanishi**:
1-don;
2-murtak ildizlari;
3-tuplanish bo ‘g ‘ini;
4-qo ‘shimcha ildizlar;
5-asosiy poya;
6-qo ‘shimcha yon poyalar
o-o-tuproq yuzasi.



***Nay o‘rash*** — bu bo‘g‘in oraliklarining uzayishi yoki poya o‘sishi hamda generativ organlar shakllanishidir. Bu davrda o‘simlik bo‘g‘inidan yuqori rivojlangan bo‘g‘in oralig‘ini uzayishi bilan boshlanadi. Birinchi bo‘g‘in oraligi o‘sishiga 5-7 kun talab kilinadi. O‘rtacha 10-15 kundan keyin o‘sishdan to‘xtaydi, shundan ikkinchi bo‘g‘in oraligi uzaya boshlaydi. O‘simlikning o‘sishi gullash boshlanganda tuxtaydi. Bu davr ham 20-25 kun davom etadi. Sutkalik o‘sishi past bo‘yli donli ekinlarda 3-5 sm, makkajo‘hori bilan jo‘xorida 8-12 sm bo‘ladi.

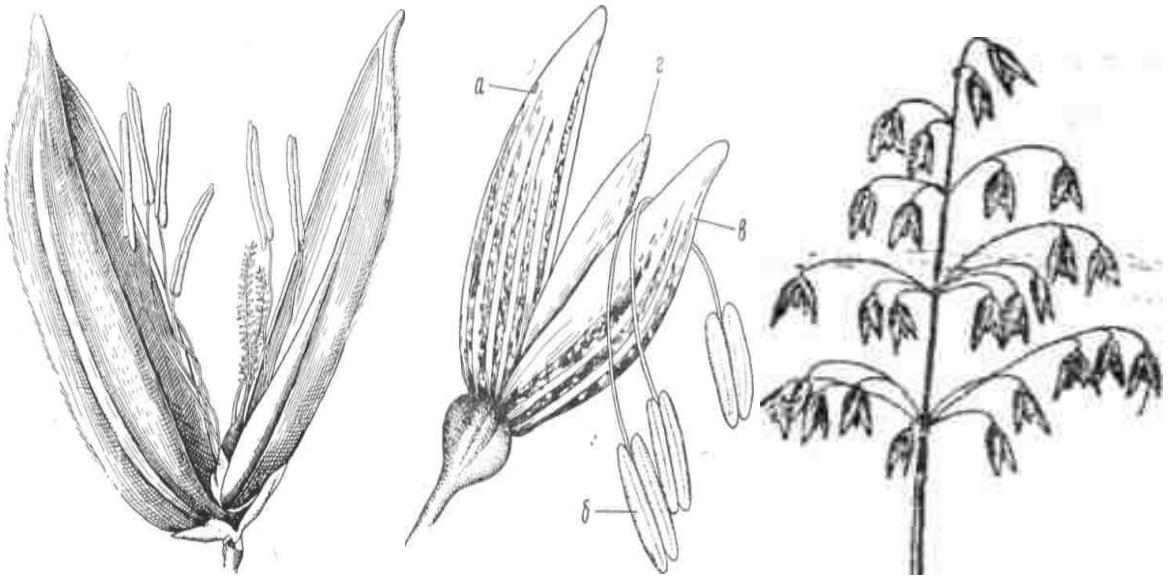
***Boshoqlanish yoki ruvaklanish*** — nay o‘rash davrida boshlanadi. Davrning boshlanishi yuqorigi barg qinidan gul to‘plamning yarmi ko‘rinishi bilan qayd kilinadi. Boshoqning to‘g‘ri shakllanishi, rivojlanishi to‘planish va nay o‘rash davridagi oziqlantirishga bog‘liq, azot bilan fosforni nisbati to‘g‘ri bo‘lishi lozim. Bu davr 10-15 kun davom etadi.

***Gullash*** — odatda boshok tortgandan keyin gullash boshlanadi, o‘rtacha 2-3 kun fark. bilan. Arpa ekin oldin gullaydi, barg kinida keyin boshok tortadi. Javdar esa boshoqlanishdan 8-10 kun o‘tgach gullaydi.
Don ekinlari changlanish xususiyatlariga karab ikki guruhga bo‘linadi.

1) o‘z-o‘zidan changlanadigan o‘simliklar bu bug‘doy, arpa, suli, sholi, tarik.;
2) chetdan changlanadigan o‘simliklar — javdar, makkajo‘xori va jo‘xori.
O‘z-o‘zidan changlanadigan o‘simliklar gul kobiklari yopiq holatda gullaydi. Ammo havo quruk va issik, bo‘lsa bu o‘simliklarda gullash gul qobiqlari ochilgan holatda ro‘y beradi. CHetdan changlanadigan o‘simliklarda gul kobiqlari ochiq bo‘ladi, chang shamol yordamida tarqaladi.
Makkajo‘xori ro‘vagi so‘taga qaraganda 2 kun oldin gullaydi. CHang shamol yordamida so‘taning ochik. tumshukchalariga tushadi. CHanglar so‘ta iplarining tumshukchalariga uchib etib, urg‘ochi gulning tugunchasiga tushadi va uni urug‘lantiradi. Makkajo‘xorini sun’iy changlatib hosilni oshirish mumkin.

Boshokli don ekinlaridan gullash (bug‘doy, arpa, javdar) boshokni o‘rta kismidan boshlanadi. Boshoqni o‘rta kismida yirik don rivojlanadi. Ruvakli don ekinlardan (suli, sholi, tarik., jo‘xori) gullash ro‘vakning uchki qismidan boshlanadi, shuning uchun bu qismdagi don yaxshi rivojlangan buladi. Urugchilikda buni e’tiborga olish kerak.

*Gullash* davridan don ekinlari yoruglikka, haroratga , namlikka talabchan buladi. Bu davr 10-15 kun davom etadi.




Sholi boshoqchasi makkajo‘xorining Otalik gulto ‘plami

Ro‘vaksimon gulto‘plam(suli)

***Pishish***. Don ekinlaridan mevaning pishishini N.N.Kuleshov uch davrga buladi: donning shakllanishi, donning to‘lishi va pishishi. Donning shakllanishi gul changlangandan keyin boshlanadi. Donning kobiqlari shakllanadi, bunga 10-15 kun vakt talab kilinadi. Bu davrda 1000 ta don vazni 8-12 g bo‘ladi. Donning tuzilishi — bu dondan kraxmal tuplanishiga bog‘liq. Bu davr 20-25 kun davom etadi, don namligi 37-40 % buladi.

Donning pishishi donga plastik moddalar tuplanishi to‘xtaganda boshlanadi. Amalda donning pishishi uch davrga bo‘linadi(1.2-jadval).

1) *Sut pishish davri* — 10-15 kun davom etadi, o‘simlik yashil rangli bo‘ladi, faqat pastki barglari sarg‘ayadi. Don sutga o‘xshash suyuqlik bilan to‘lgan, namligi 50-51 % bo‘ladi. Don hosili bu davrda yig‘ilmaydi.

2) *Dumbul pishish davri* — o‘simlik sarg‘ayadi,namligi 22-30 % bo‘ladi. Bu davr 10-12 kun davom etadi. Don tula pishganda doni to‘kiladigan navlar dumbul pishishda yigiladi.Oldin o‘riladi va so‘ngra don to‘la pishganda yig‘ishtiriladi va yanchiladi. Bu davrda don ona o‘simligidan ajraladi.

3) *To‘la pishish davri* »- o‘simlik butunlay sarg‘ayib, bir muncha kichrayadi, don kotmagan, namligi 14-19% bo‘ladi. Ayni shu muddatda hosil tezda yigishtirib olinishi lozim. Bu davr 8-10 kun davom etadi. Don unuvchanlik sobiliyatiga ega bulganda, tu\pa pishgan deb hisoblanadi.

*Noqulay sharoitning ta’siri.* Donni shakllanishi va pishishiga ancha ta’sir kiladi. Garmsel ta’sirida don ancha erta etiladi, birok puch, burishgan buladi va donning biologik hamda texnologik sifati pasayadi.

*Barcha agrotexnik tadbirlarni o‘simlikning rivojlanish bosqichlariga qarab aniq o‘tkazish zarur, bunda aloxida bosqichlarning hosildorlikni shakillanishidagi o‘rniga e’tibor qilib,uni o‘tish uchun talab qilinadigan sharoitlari hisobga olinishi zarur, aks holda bu sharoitlar bo‘zilsa hosildorlikning pasayishi kuzatiladi.*

1.2-jadval.

**Donning pishish davrlari.**

| *Pishish bosqichlari* | *Farqlash belgilari* | *Donning namligi, %* |
|---|---|---|
| Sut, sut-mum pishishgacha | Doni yumshoq, suyuq, sutsimon, poyasi va yuqorigi barglari xali yashil, bo‘g‘ini xali egiladi, tirnoq ostida doni eziladi. | 50% atrofida |
| Mum pishish | Poyasi va barglari sariq,bo‘g‘ini qarsil laydi,doni yopishqoq tirnoq ostida eziladi | 30% atrofida |
| To‘liq pishishning boshlanishi. | Poyasi dondan to‘liq ajraladi, doni qattiq tirnoq bilan ezil –maydi | 20 17% atrofida |
| To‘liq pishish | Doni boshoqdan engil tushib ketadi somoni sinadi, donni ezish mumkin emas,poyalarning yuzasidan o‘tganda qarsillaydi | 16-14% atrofida |

Pishish davrining davomiyligi ob-havo sharoitlariga, kasallikka va zarar kunandalarga bog‘liq.

## 3.ORGANOGENEZ STAGES

Looking geotropizm reason koleoptilalar grow up and roots grow down looking murtak far; because no matter how you lay hawthorn seeds in the soil.When the seeds start to sprout out half of their own weight-a swallow of water - this is in the first group, the second group of grain crops, while 25% will swallow the water. An important sign of hawthorn seed sprouting seeds raw materials. Passing out as soon as the surface of the soil in the lawn soil layer

koleoptilening appear. First, as soon as the leaves close to the soil is formed and the part of the face of the earth tuplanish of the unit is formed. Elbow joints and connective urug'pallali tuplanish the part of the grain (under gipokotil) is called. Planted to a depth of the seed depends on its depth. So after the leaves appear,$_2$ 's assimilation (win) on a dry matter basis and its start increases. Netto is the measure of his assimilation $CO_2$ is.:

$$\mathbf{DNA=} \frac{\mathbf{S_{m2}\, S_{m1}}}{\mathbf{0.5(L_1+ L_2)\, CH}}$$

This y -DNA here –assimilation nettoc$O_2$ s share (g/$m^2$ hours); $Cm_1$ $cm_2$ $_{\text{- to}}$ - measurement of the amount of dry matter at the beginning and end of $l_1$ and $l_2$ .- measurement of the levels at the beginning and end leaves.CH - the number of hours.(CLazaar Hp)

Dna - this is the type and temperature of grain crops, ore items that provide light with water to provide and is very dependent on leaf levels.

Leaf levels of cereals from 25 thousand to 40 thousand $m^2$/ ha can be. This figure can change with agronomic events. In cereals in dna from 17 to 31 g/$m^2$ /hour be it. Tuplanish is formed of side branches in different amounts. The main branches of tuplanish unit 5-orderly develops side branches. The level difference of the types of cereals, with the side branches to form. This figure is day length, temperature, provide with nitrogen, crops and the planting depth depends on the number of bush. Tuplanish different types of plants leaves 2-4 units formed when it begins. Most productivity twigs-this basic orderly and second branches. Strong tuplanish is not considered to be a guarantee of high yield. This figure should be acceptable. Tuplanish a new branch is formed in the period, also in the form of boshoqchalar begins to grow and flowers and roots grow strong. The length of the stem between the root system and in the presence of genetic capacity korrelyativ detected.

Boshoqchalar from the main stem of the formation of flowers and then from the side branches. Konusi boshoqchalar will start to be harvested from the buds of primary growth. Earlier in the flowers then the flower top boshoqcha the bottom of the form. In the same period with acceptable agronomic should be able to tuplanish public events. Generativ period-naychalash era. No more than 12 hours of day light during this period, the first group on the basis of a plant begins to grow grain to the edge strong. Autumn grain crops that are able to form for yaravizatsiya period is required to pass. Vernalizatsiya appear weak in this form of wheat and barley in the spring (duvarak) can be planted. The inside of the stem in the same period boshoqda its strong growth is observed. During this period the plants, which will lead to the shortage of feed, water, and diseases, is very sensitive to nitrogen.

Boshoqchalar shakllanmasligi in such conditions can an acceptable level. Naychalash period ends with the completion cobs formed later period boshoqlanish will take. Hot Boshoqlanish is up in the air, but in cool weather slows or stops. Boshoqlanishdan after flowering begins. Self-changlantiruvchi crops-wheat, barley, oats, millet and rice; corn, sorghum, rye cross-pollination of the plant are. Flowering starts from the middle of her raw boshoqda crops in the provinces, while in ro'vak from the top.An average of 30-60 minutes a single flower, flowering period can last 10-15 days, of course, related to the conditions of the environment without.After pollination boshoqda certain number of grains will be known.The harvest of grain to be observed with the formation of biological receptors of the system when all this is gathered in the process of growth and development assimilyatlar.

The duration of the process of formation of the grain crop to be active and assimilation depends on the order to'lishib. In this period the grain mass accumulation. To'lishib of the grain in the process of enabling it to weather conditions, soil humidity, diseases, pests shows the effects of.Active assimilation of these conditions, SO2 depends on. Assimilation the manufacturer of the product and provide the reporter leaves, stems, and fuller is boshoqchalar shell. They are in the short term (2-3 weeks), you should fill the grain with the stocks of substances. To do this, the spike, a portion of the stem with leaves green, it is necessary to keep in a healthy condition. This process of pre-and grain endosperm leads to a decrease in the share of bo'zib be will be empty. As a result of the protein and its fractions in violation of the ratio. The ripening period and the term of the grain crop was harvested to determine it is important to know.

Physiological ripening grain or they just have the ability to have the ability to grow sprouts is achieved when full. Tinim different periods of plants. When sufficiently moist rye and after-ripening physiological tritikale is able to spring out.Ontogenez ovropa are called the stages of development in countries in the development of the plant, and there are 9 of them on the scale of stages of development.

***Ontogenez stages.*** The development of the plant have been studied by many scientists, and they are defined by the same things: the period of phenological changes in plant quality during the transition period will be vaxolanki them with eye chamalab will not be detected.Together with other scientists studying the development of cereals, m. f. narrate ko'perman own, adding coverage of the passing of an annual plant in the stage of 12 gave it ontogenez.We will consider the main stages of the development of grain crops.Monitor phenological stages to determine the period organogenez to go on

a systematic basis at the same time is very important. A year following the 12 stages of plants in general organogenezning identified:

*Stage I*- the formation of the primary growth konusi murtak Bo'lgusi rod of the body. Physiologically, the tissue formed konusi sitologik relationship to grow in the organization-that is meristema. Gumbazsimon form, the cells tabaqalashgan weak. This part is colorless. Hawthorn seeds sprouts this stage with the appearance of the lawn and plant out with qo'ng'irbosh is completed.

*Phase ii*– joints and range of the cone and is the basis murtak bo'gin tabaqalash to the leaves. Murtak orderly and second leaves appear in the wars of dungchalar murtak but also appear.In the second stage of the plant vegetative organs of the plant was significantly and the process of stratification in the main will determine the shoxlangan night.

*III.stage*– Murtak inflorescences of murtak foliage, was the main axis of the stratification of the flower side. Inflorescences in plants, and is formed of two segments observed at this stage qo'ng'irbosh axis pallali dungchalar appear.

*Stage iv*– the inflorescences appear on the axis of the second murtak o'suv konusi orderly. The inflorescences appear depend on the type of inflorescences inflorescences than one axis or the axis of dungchalar without shoxlangan begins. Murtak harakteri shoxlangan of inflorescences and the level of hereditary and depending on the type of plant. Indicators of the quality of the external environment conditions may vary.

*V stage*– and the stratification was be in the form of the flower. Dungchalar fatherly, fatherhood, and the threads of changdonlarga is tabaqalash. Sporogen cells appear at the end of this stage, the next of fatherhood and motherhood will continue to grow, flower and so covered the growth of the body are also observed.

*Stage VI*– Generativ organs are formed (micro makro and sporogenez).It is observed that an increase of the size of the leaves and the flowers Gulkosaning strong growth is observed.

*VII step*–Fatherhood and motherhood gametofit development. A quad-core have formed changchi is. At the same time the authority of the strong growth of inflorescences of flower covered is observed, the mix of fatherhood and motherhood begin to grow too strong the strong growth of ustunchasi is observed.

*The next stage*–All the organs of the inflorescences and flowers completes the process of formation. Carrying the yield factors during the development period and the factors which contribute to the observed decrease of the yield factors, carrying the process to produce seeds sprouts hawthorn, tuplanish, and hawthorn seeds to be harvested grain to pay boshoqchalar work. The factors that reduce

the commercial yield: sprouts out is not enough to stem the productivity of seed and boshoqchalar and the reduction of the weakerwill be the number of ashi. In the period of development will lead to a significant increase in the yield on the management of the plant.

## 3.ORGANOGENEZ BOSQICHLARI

Geotropizm sababli koleoptilalar yuqoriga qarab o‘sadi, murtak ildizcha pastga qarab o‘sadi; urug‘ning tuproqda qanday yotganligidan qat’iy nazar.Urug‘ unib chiqa boshlaganda o‘z vaznining yarmicha suv yutadi - bu birinchi guruhda, don ekinlarining ikkinchi guruhida esa 25% suv yutadi. Urug‘ning unib chiqishi urug‘lik xom-ashyoning muhim belgisi. Koleoptilening tuproq qatlamidan o‘tib tuproq yuzasiga chiqishi bilanoq maysalar paydo bo‘ladi. Tezda birinchi barg hosil bo‘ladi va tuproqning er yuziga yaqin qismida tuplanish bo‘g‘ini shakillanadi. Tuplanish bo‘g‘inini va donini biriktiruvchi qism urug‘palla osti tirsagi (gipokotil) deyiladi. Uning chuqurligi urug‘ ekilgan chuqurlikka bog‘liq. Barglari paydo bo‘lgandan keyin $SO_2$ ning assimilyasiyasi (yutilishi) boshlanadi va uning asosida quruq modda ortadi. Uning o‘lchovi bo‘lib netto-assimilyasiya $CO_2$ hisoblanadi.:

$$\mathbf{DNA=\frac{S_{m2}-S_{m1}}{0{,}5(L_1+L_2)\,CH}}$$

Bu yerda DNA –netto assimilyasiyada $CO_2$ ning ulushi ($g/m^2$ soat); $Sm_1$ i $Sm_2$ - o‘lchovlarning boshlanishi va oxiridagi quruq modda miqdori $L_1$ va $L_2$ -o‘lchovlarning boshi va oxiridagi barg satxi.CH- soatlar soni.(CHpaar)

DNA- bu don ekinlarining turiga va haroratga, ma’dan unsurlar bilan ta’minlanganligiga, yorug‘likka, suv bilan ta’minlanganligiga va barg sathiga juda bog‘liq.

Donli ekinlarning barg satxi 25 mingdan 40 ming $m^2$/ ga bo‘lishi mumkin. Bu ko‘rsatkichni agrotexnik tadbirlar bilan o‘zgartirish mumkin. Donli ekinlarda DNA 17 dan 31 $g/m^2$ /soat bo‘lishi mumkin. Tuplanishda turli miqdorda yon novdalar hosil bo‘ladi. Asosiy novdaning tuplanish bo‘g‘inidan 5-tartibli yon novdalari rivojlanadi. Donli ekinlarning turlari yon novdalar hosil qilish darajasi bilan farqlanadi. Bu ko‘rsatkich kun uzunligiga, haroratga, azot bilan ta’minlanganligiga, ekinning tup soniga va ekish chuqurliklariga bog‘liq. Tuplanish o‘simliklarining har xil turlarida 2-4 ta barg hosil bo‘lganda boshlanadi. Eng mahsuldor novdalar-bu asosiy va ikkinchi tartibli novdalardir. Kuchli tuplanish yuqori hosil olishning garovi bo‘lib hisoblanmaydi. Bu ko‘rsatkich maqbul bo‘lishi kerak. Tuplanish davrida yangi novdalar hosil bo‘ladi, bundan tashqari boshoqchalar va gullar shakllana boshlanadi va ildiz

kuchli o‘sadi. Ildiz tizimining quvvati bilan va poyaning uzunligi o‘rtasida genetik korrelyasiya borligi aniqlangan.

Gul va boshoqchalarning shakllanishi asosiy poyadan boshlanadi, keyin yon novdalardan. Birlamchi o‘sish konusidan boshoqchalarning kurtaklari hosil bo‘la boshlaydi. Boshoqchaning ichida avval pastki gullari keyin yuqori gullari shakllanadi. Huddi shu davrda agrotexnik tadbirlar yullari bilan maqbul tuplanishga ega bo‘lish lozim. Generativ davr-naychalash davridan boshlanadi. Bu davr kun yorug‘ligi 12 soatdan ko‘p bo‘lsa birinchi guruh donli o‘simliklari kuchli ravishda bo‘yiga o‘sishni boshlaydi. Kuzgi shakllariga ega bo‘lgan don ekinlari uchun yaravizatsiya davrini o‘tishi talab qilinadi. Bug‘doy va arpada vernalizatsiya kuchsiz namoyon bo‘lsa bu shakllari bahorda (duvarak) ekilishi mumkin. Huddi shu davrda poyaning ichida boshoqning kuchli o‘sishi kuzatiladi. O‘simliklar bu davrda ozuqalarning etishmasligiga, suvning, azotning va kasalliklarning bo‘lishiga juda ta’sirchan bo‘ladi.

Bunday sharoitda boshoqchalar maqbul miqdorlarda shakllanmasligi mumkin. Naychalash davri boshoq shakillanishining tugashi bilan tugaydi, keyinchalik boshoqlanish davri o‘tadi. Boshoqlanish issiq havoda tezlashadi, aksincha salqin havoda sekinlashadi yoki to‘xtaydi. Boshoqlanishdan keyin gullash boshlanadi. O‘z-o‘zini changlantiruvchi ekinlar-bug‘doy, arpa, suli, tariq va sholidir; makkajo‘xori, jo‘xori, javdar chetdan changlanuvchi o‘simliklardir. Boshoqli ekinlarda gullash boshoqning o‘rtasidan boshlanadi, ro‘vakda esa tepasidan.Bitta gul o‘rtacha 30-60 minut, gullash davri 10-15 kun davom etishi mumkin, albatta atrof muhit sharoitlariga bog‘liq holda.CHanglangandan keyin boshoqda aniq don soni ma’lum bo‘ladi.Donning hosil bo‘lishi biologik retseptorlar tizimining shakllanishi bilan kuzatilib boriladi, bu assimilyatlar butun o‘sish va rivojlanish jarayonida to‘planib boradi.

Hosilning shakllanish jarayoni donning to‘lishishi davomiyligiga va assimilyasiyaning faolligiga bog‘liq. Bu davrda don massasi to‘planadi. Donning to‘lishish jarayoniga obi-havo sharoitlari, tuproq namligi, kasalliklar, zararkunandalar ta’sir ko‘rsatadi.Bu sharoitlardan assimilyasiya faolligi SO2 bog‘liq. Assimilyasiya mahsulotlarini ishlab chiqaruvchisi va ta’minlovchisi barg, poya, boshoqchalarning qobiqchalari va boshoq hisoblanadi. Ular qisqa muddatda (2-3 xafta) donni zahira moddalar bilan to‘ldirishi kerak. Buning uchun, boshoq, poyaning bir qismini bargi bilan yashil, sog‘lom holatda saqlash zarur. Bu jarayonlarning oldindan bo‘zilishi endospermni ulushini kamayishiga olib keladi va don puch bo‘lib etiladi. Buning natijasida protein va uning fraksiyalarining nisbati buziladi. Hosilni yig‘ishtirib olish muddatini aniqlash uchun donning pishish davrisini bilish muhimdir.

Fiziologik pishishga qachonki don o‘sish qobiliyatiga ega bo‘lsa yoki ular to‘liq unib chiqish qobiliyatiga ega bo‘lganda erishiladi. O‘simliklarning tinim davrlari har xil. Javdar va tritikale fiziologik pishgandan keyin etarli darajada nam bo‘lganda unib chiqishga qodir.Ontogenezda o‘simlikning rivojlanishi Ovropa mamlakatlarida RIVOJLANISH bosqichlari deb ataladi va ularning shkalasi bo‘yicha 9 ta rivojlanish bosqichlari mavjud.

***Ontogenez bosqichlari.*** O‘simlikning rivojlanishi ko‘pchilik olimlar tomonidan o‘rganilgan va ular tomonidan shu narsalar belgilangan: fenologik davrlarning o‘tish davrida o‘simlikda sifat o‘zgarishlar bo‘ladi, vaxolanki ularni ko‘z bilan chamalab aniqlab bo‘lmaydi. Donli ekinlarning rivojlanishini o‘rganishda boshqa olimlar bilan birgalikda F.M.Ko‘perman o‘z qissasini qo‘shdi, u bir yillik o‘simliklarda ontogenezning 12 ta bosqichini o‘tashini yoritib bergan.Biz don ekinlarining rivojlanishining asosiy bosqichlarini ko‘rib chiqamiz.Fenologik davrlarni kuzatish bilan bir vaqtning o‘zida organogenez bosqichlarini sistematik ravishda aniqlab borish juda muhim. Umuman bir yillik o‘simliklar quyidagi organogenezning 12 ta bosqichlari aniqlangan:

*I bosqich*- Bo‘lgusi novda organlarining birlamchi murtaklari bilan o‘sish konusining shakllanishi. Fiziologik, sitologik munosabatida o‘sish konusi hosil qiluvchi to‘qimani tashkil qiladi-ya’ni meristemani. SHakli gumbazsimon, xujayralari kuchsiz tabaqalashgan. Bu qismi rangsiz. Bu bosqich urug‘ning unib chiqishi bilan hamda qo‘ng‘irboshli o‘simliklarda maysaning paydo bo‘lishi bilan yakunlanadi.

*II bosqich*– Konusning asosi murtak bo‘g‘inlari va bo‘gin oraligi hamda barglarga tabaqalashadi. Murtak barglarining qo‘ltig‘ida dungchalar paydo bo‘ladi va ikkinchi tartibli murtak o‘qlari ham paydo bo‘ladi.Ikkinchi bosqichda o‘simlikning asosiy vegetativ organlarining tabaqalanish jarayoni kechadi va sezilarli darajada o‘simlikning shoxlanishi aniqlanadi.

*III.bosqich*– Murtak to‘pgulining, murtak barglarining, yon gullarining, asosiy o‘qini tabaqalanishi bo‘lib o‘tadi. Bu bosqichda qo‘ng‘irboshlilarda to‘pgul o‘qining segmentlari hosil bo‘ladi va ikki pallali o‘simliklarda dungchalar paydo bo‘ladi.

*IV bosqich*– To‘pgulning murtak o‘qida ikkinchi tartibli o‘suv konusi paydo bo‘ladi. To‘pgullarning tiplariga bog‘liq holda to‘pgulning o‘qida bittadan dungchalar paydo bo‘ladi yoki to‘pgul o‘qi shoxlanishni boshlaydi. Murtak to‘pgulining harakteri va shoxlanish darajasi o‘simlikning turi va irsiyatiga bog‘liq. Tashqi muhit sharoitidan sifat ko‘rsatkichlari o‘zgarishi mumkin.

*V bosqich*– Gulning hosil bo‘lishi va tabaqalanishi bo‘lib o‘tadi. Otalik dungchalar, otalik iplariga va changdonlarga tabaqalashadi. Bu bosqichning oxirida sporogen xujayralar paydo bo‘ladi, otaliklarning hamda onalikning

keyingi o‘sishi davom etadi, Huddi shunday gulni qoplovchi organlarning ham o‘sishi kuzatiladi.

*VI bosqich–* Generativ organlar shakllanadi (mikro va makro sporogenez).Gulkosaning kuchli o‘sishi kuzatiladi va gul barglarining o‘lchamlarining ko‘payishi kuzatiladi.

*VII bosqich*–Otalik va onalik gametofitlari rivojlanadi. Bir yadrolik changchalar hosil bo‘ladi. Bir vaqtning o‘zida to‘pgulning, gulning qoplovchi organlari kuchli o‘sishi kuzatiladi, otalik iplari ham kuchli o‘sa boshlaydi va onalik ustunchasining kuchli o‘sishi kuzatiladi.

*VIII bosqich*–Barcha organlarning to‘pgul va gullarning shakllanish jarayoni yakunlanadi. Rivojlanish davrida hosildorlikni oshiruvchi omillar va pasaytiruvchi omillarning borishi kuzatiladi Hosildorlikni oshiruvchi omillarga, urug‘ning unib chiqish jarayoni, tuplanish, boshoqchalar va urug‘ning hosil bo‘lishi, donning to‘lish ishi. Hosildorlikni pasaytiruvchi omillar: unib chiqish etarli emas, poyaning mahsuldorligi, urug‘ va boshoqchalarning qisqarishi va zaiflashishi soni. Rivojlanish davrlarida o‘simlikni to‘g‘ri boshqarish hosildorlikni sezilarli darajada oshirishga olib keladi.

# GLOSSARY ( ГЛОССАРИЙ )

| Atamaning nomlanishi | | | Atamaning ma’nosi |
|---|---|---|---|
| **O‘zbek tilida** | **Ingliz tilida** | **Rus tilida** | |
| Donli ekinlar | Grain crops | Зерновые культуры | Donli ekinlar inson uchun eng zarur bo‘lgan asosiy oziq ovqat-un va non mahsulotlarini beradi). |
| Bug‘doy | Wheat | Пшеница | Asosiy oziq ovqat-un va non mahsulotlari olinadi, yem-xashak sifatida foydalaniladi |
| Maysalash | out of the lawn | Прорастание | Don ekinlari urug‘larining bo‘rtishi va ko‘karib chiqishi |
| Tuplanish | The tillering | Кущение | Yangi qo‘shimcha poyalarning paydo bo‘lishi |
| Boshoq chiqarish | Earing | Колошение | Nay o‘rash davrida boshlanadi. Davrning boshlanishi yuqorigi barg qinidan gul to‘plamning yarmi ko‘rinishi bilan qayd kilinadi |
| Gullash | Blossom | Цветение | Boshok tortgandan keyin gullash boshlanadi, o‘rtacha 2-3 kun farq bilan. |
| Pishib yetilish | Maturation | Созревание. | Don ekinlaridan mevaning pishishini N.N.Kuleshov uch davrga buladi: donning shakllanishi, donning to‘lishi va pishishi |
| *Ontogenez bosqichlari* | Stages of ontogenesis | Этапы онтогенеза | Bu davrlarda o ‘simliklarda miqdor va sifat o ‘zgarishlari bo ‘ladi |

## Foydalanilgan adabiyotlar

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