MACHINESAnd I mechanization equipment

UDC
631.3

ECOLOHIYA vineyards

VA Dubrovin, Doctor of Engineeringandchnyh Sciences AA Brovarets, Ph.D. Hazaali Haider Al-Ra'ad Nadim, a graduate student

Bazhlyvym aspect of growing grapes is irrigation. A significant impact of irrigation of vineyards is obtained when respected deadlines and quality standards spend watering. The high efficiency of drip irrigation of grapes. The traditional system of drip irrigation requires its improvement through the use of monitoring equipment available moisture in the soil and appropriate irrigation grapes. These tasks can be realized through the development and implementation of CP-growing technology, as for Ukraine, and taking into account the features peculiar to Iraq.

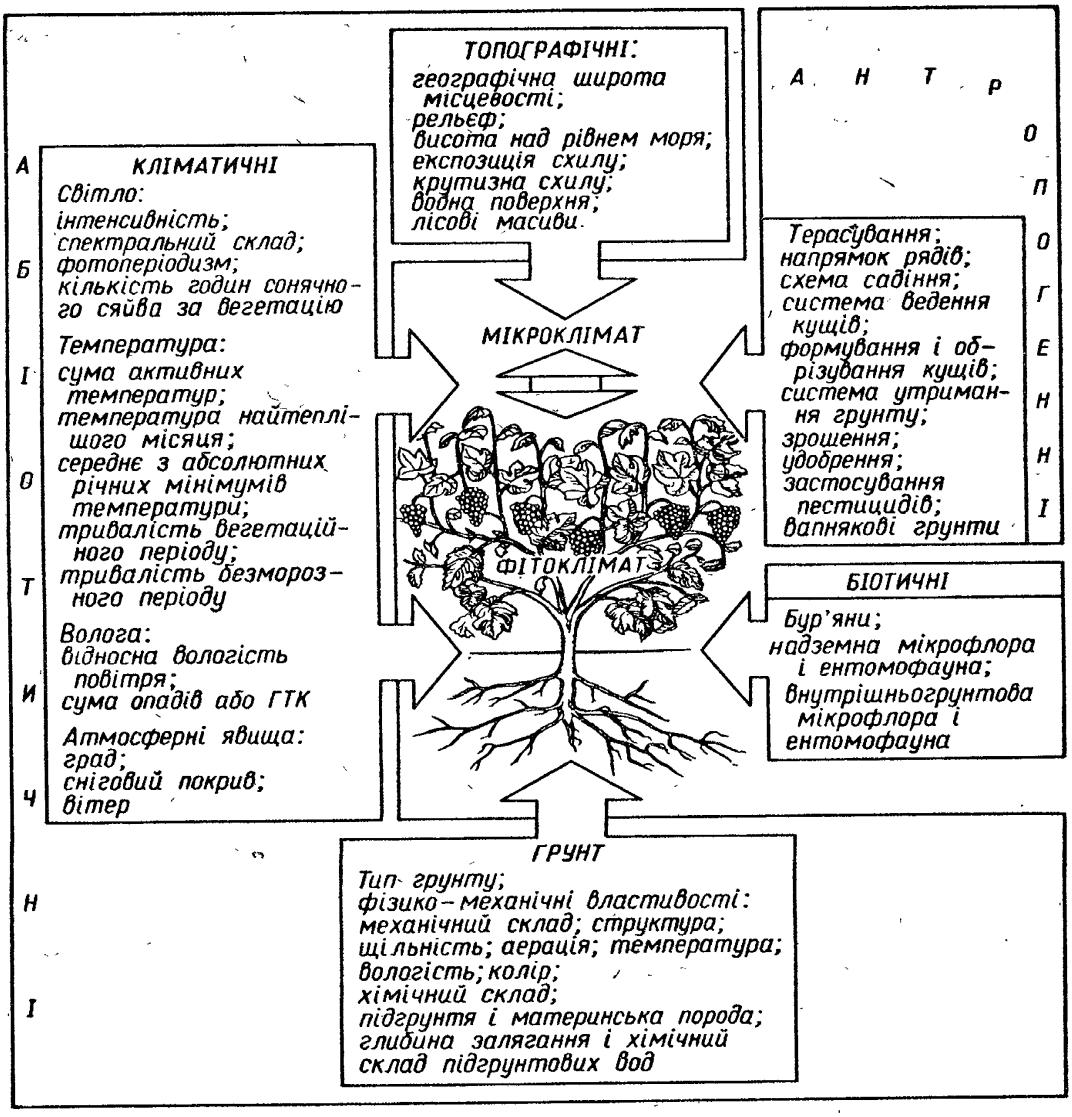
YouNógrád, CP technology monitoring, ecology irrigation.

Resolutionska problem. PreDMetI ecology grape is a structure and a set of links between grapes and conditions of its existence in the environment that cause growth, development, yield and quality of berries. The word "ecology" comes from two Greek words: "oikos" - zhytlo, refuge, "logos" - science.

Elements of the environment, affecting the livelihoods of plants called environmental factors. They are divided into two groups: abiotic (inanimate action) and biotic (living organisms action). They in turn are divided into sub-elements and climatic (light, temperature, humidity, atmospheric phenomena); edaphic (soil and their physical and chemical properties,
rodyuchist, background) orographic (geographical location, topography, slope exposure, surface water, etc.) and fitohenni (weeds, green manure, rootstock); zoogenous (bacteria, fungi, Entomofauna) and anthropogenic related to human activities (training areas and laying plantations, system maintenance, forming and trimming
bushs, tillage, fertilization, irrigation, chemical and reclamation
al.) (Fig. 1).

Analogrecent study. YouNógrád - plant warm,
pomirnohof climate, characterized by a large ecological plasticity.

*** Supervisor - PhD VA Dubrovin**



Rice. 1. Environmental factors that affect the grapes and its performance.

DTo the best of European grape varieties need a long, warm or hot summers and very cold winters "within the temperate industrial culture is possible only in certain favorable ecological zones. Neukryvna culture somewhat risky due to insufficient heat and frost low grades.

Significantly reduce the risk culture at neukryvniy possible through careful selection of sites for planting shrubs
(slopes of southern exposure, near large bodies of water, in a well-protected areas of north winds) and the assortment of grapes and applying advanced agricultural techniques (making high standards of organic fertilizers under plantazh, strains forming shrubs with enough long-term timber management
arrizuvannya load and bushes in conjunction with the operations of the

greenand parts of plants, trees and irrigation quality protection against diseases and pests).

Light - an important factor in the life energy grapes. It makes photosynthesis in green parts of plants.

Vynohrad - light-plant. Only with good light bushes can obtain high-quality dining and grape processing technology.

DA green plants, including grapes, of particular importance photosynthetic radiation (PAR) - part

shortwave solar radiation in the wavelength range of 380-720 nm, which is absorbed by chlorophyll and leaf photosynthesis contributes to energy supply. Industrial grape plantings are quite imperfect photosynthetically active system. The utilization of PAR is 0.5-2% [1], which gives

to use the potential yield of grapes only 15-20%. Therefore, the full range of farming practices has

bottlesand aims at maximizing the use of space factors (light, heat) (Fig. 1) [1-5].

VoLOGISTICS soil and air - very important environmental factors that determine the durability and performance of grapes.

According to prof. SO Miller (1948), the best grape growing and fruiting when annual precipitation is 800 - 700 mm and if they are evenly distributed. For less rainfall or an unfavorable distribution of vegetation in phases grape harvest is reduced and deteriorating quality berries.

Metand lit.idzhen. Our IUthenth there is daboutslidzhennya paclyvu factors ecology growing grapes for various existing technologies for growing grapes.

Resultand lit.idzhen. The main LANKOth complexin andhrotehnichnyh measures when growing grapes on irrigated lands is the rational mode of irrigation, which defined the terms, rules and amount of irrigation as needed shrubs. Irrigation regime should ensure obtaining high yields of good-quality fruit and not impair physical and chemical properties of the soil, the ecological state lands.

In each case, the terms and irrigation depend on soil and climatic conditions of the area, hydrologic condition plot method. irrigation, plantation age, the biological characteristics of varieties, rainfall, water bushes. Therefore, irrigation regime must specify annually on specific UMOin the

economy.

Dll vineyards south of Ukraine are the most important volohozaryadkovi vegetation and irrigation, which form the basis

racionalnoho irrigation regime. Promising is the use of moisturizing fertilizing and watering.

Volohozaryadkovi watering is carried out in the autumn to create reserves of moisture in the deeper layers of soil to provide better Perezimivlyu bushes and their development during the first growing season. Need volohozaryadky due to the fact that almost every year in the vineyards in autumn soil dries dead stock of moisture and winter-spring precipitation do not provide optimum moisturizing active layer at the beginning of the growing season bushes. In the fruit-bearing younohradnykah high moisture reserves created volohozaryadkoyu make it possible to increase the load in the bushes cut, start watering vegetation in later periods. In arid autumn volohozaryadkovi very efficient irrigation in areas plantazhu where planning to plant nursery or "grapes.

Behetatsiyni watering regime form the basis of irrigation of vineyards. With their help specifically regulated water tand soil nutrient regimes during the growing season, eliminating negative effects of drought. High efficiency irrigation grapes achieved with a combination volohozaryadkovyh vegetation and irrigation.

Wetting irrigation have enormous implications for rooting schep grape shkiltsi. their purpose - to create an optimum climate (humidity, temperature and soil) in shkiltsi within 20-25 days after planting schep. Such watering is carried out by Tuma-noutvoryuyuchyh machines (TOW-7, refurbished DDD-100M), tractor sprayers and more. High vidsotofor (90) rooting schep achieved when othersibnodyspersne sprinkler held at least once or twice per hour with an increase in temperature above 25 ° C. At each watering spend 400-1000 l / ha of water. Of course wetting watering is only a supplement to of vegetation.

Fertilizing watering is used for the operational management of soil nutrient regime according to the needs of the plants. Nutrient fertilizers in irrigation water are in ionic form and quickly absorbed by plants. For those using irrigation liquid compound fertilizers, urea, ammophos, potassium chloride. Especially effective in fertilizing watering dropstional irrigation. For normalization and feed fertilizers in irrigation water use hidropidzhyvlyuvach GPA-50.

Youvalue and timing of irrigation. The yield of grapes fromnachno depends on timely watering. Studies in the Crimea show that even short-term decrease in soil moisture in the vineyard to the wilting coefficient leads to

terminationI grow berries, which have not restored the next time the growing irrigation [2].

In irrigated viticulture is the most common method for determining the timing and irrigation largest active humidity (where Rosemischuyetsya 80% or more vsysnyh roots of bushes) soil layer "For this spring on every dirt cancellation determine the depth of 1,2 to 1,5 m lowest moisture (HB), volumetric weight and depth of wetting (active) when watering soil layer .

Hand Low endin tothhetatsiyi thatten days Determinedb toaboutLOGISTICS to assetstional layer of soil. When it drops to the lower limit of the optimum moisture content, begin watering. The lower limit of the optimum wetting of the soil (before ripening berries), depending on the grain size is 50-75% NV. The depth of the soil layer at zvolozhuvanoho volohozaryadtsi is 1.2-1.5 m, the vegetation watering - 1m (Table. 1).

1. Osnoers indicators irrigated vineyards mode.

Soils	The lower limit of the optimal soil moisture	The lowest moisture	Mezhi optimum moisture content,% NV	The depth of wet soil, m	Ob'mna soil mass, t / m3	Irrigation, m3 / ha
	% By weight of a completely					
Mornozemy conventional and South:						
toazhkosuhlynysti	18	24	100-75	1.0-1.2	1.30	780
srednesuglinistye	13.9	19.9	100-70	1.0-1.5	1.50	900
lehkosuhlynysti	11.7	18	100-65	1,0-1,3	1.41	890
sandy	10.7	16.5	100-65	1.0-1.2	1.50	870
Sand on the river Chynystyh sands	10.2	14.6	100-70	1.0-1.2	1.52	670
Turf (sand)	3.2	6.4	100-50	1,0-1.5	1,65	530

Norma vehetatsiynoho wateringin calccounted fromand FormulathAM.Kostyakova:

M "100 [illegible] N [illegible] V [illegible] (B

df M - irrigation norm, m3 / ha; N - zvolozhuvanoho depth soil layer, m; V - bulk density of soil, t / m3; B - HB,% of dry weight soil; in - peredpolyvna soil moisture, %mod dry weight ґruntu.

The Institute of Viticulture and Winemaking behalf VE Tairova develLeno IUthend toIZ-identification withtroks onlyvu fromand magnitudeus contsentratsiyi cell sap sheets that meet the lower limit

optymalnoho moistening the soil. It allows you to quickly and accurately set the timing of irrigation and five or six times to reduce the cost of time compared to traditional methods.

PRODUCTIONand experience shows that in the vineyards, which lies on the southern black soil and watered furrow or
irrigation, autumn and spend volohozaryadkovyy one to three vegetation watering depending on ripening varieties and timing of rainfall during the summer. Term of the first irrigation roughly in the middle of June (after flowering) and second
- The second week of July. For early and medium varieties ripening two terms watering enough, the vineyards late varieties in the first-second decade of August conduct third watering. Watering is stopped for two to four weeks before harvesting.

Prand drip irrigation, which causes local (18-30% of the power bushes) moistening the soil traditional methods
IdentificationI terms and irrigation of little use because of their low speed and complexity. A reliable method for determining the timing and irrigation is estimated, using indicators where daily values evaporation from the water surface, which
determine vyparometrom ГHY-3000. This information can also be obtained from the nearest (50-60 km) weather station. Research has established that the optimum soil moisture regime created when the black soil of sandy irrigation rate is 0.5, and the vazhkosuhlynkovyh - 0.65 on the value of daily evaporation. Watering is carried out once a decade. Irrigation regime includes volohozaradku (250-300 m3 / ha) and 8-10 watering vegetation (60-
120m3 /
ha).

Methods and techniques of irrigation of vineyards. Methods and techniques of irrigation should ensure uniform wetting of the soil in the area and at a given depth, mechanization and high
productivitytions of work and economical consumption of
water.

In practice irrigated viticulture methods used ground irrigation (furrow, furrow-schidynah), irrigation, underground and drip.

Furrow irrigation - The most common method of irrigation of vineyards "He gives good results only on carefully
chlanovanyh areas with bows 0,002-0,005. Each aisle width 3-3.5 m using PRVM 19000-cut two or three deep furrows 20-25 cm. The distance between the grooves on light
soils - 0.6 m, medium - 0.7-0.8 and heavy - 0,9-1,0 m. irrigation furrows cut at a distance of 0.7 m from the axis Council
grapesin.

Onlil-furrow crevices used in areas with rough terrain, medium and vazhkosuhlynkovyh soils. In the central aisle vineyard ripper PRVM-53000 cut a slit-groove depth of 45-50 cm. For the formation of grooves at the top of the riser shelf listernoho ripper welded hull. This groove has a depth of 20-25 cm, width 50-60 cm on top and below the bottom of the crack depth of 25 cm. At a distance of 70 cm from the axis of furrows soil treated side baking powder to a depth of 30-35 cm.

Furrows, cracks make it possible to irrigate areas with large trees bow (to 0.01), to increased irrigation irrigated by running long furrows (200-450 m), to ensure good wetting of the soil and significantly increase productivity. This method of irrigation allows to significantly reduce costs for water
fizychne evaporation, so on the second or third day is an opportunity to zarivnyuvannya (cultivation) fissures, crevices.

Oncountry and rationing of water in irrigation furrows carried out using irrigation pipes, siphons, portable flexible conduit with adjustable water outlets. To account for the water coming to the area, a temporary sprinkler head or excretory
borozChipoletti set us weir. This makes it possible to evenly distribute irrigation water for irrigated vineyard.

Onlil irrigation is widely used in the vineyards around the world. It provides a uniform wetting of the soil in the area, increases productivity and reduces on irrigation
costsand labor. In Ukraine sprinkler irrigation in perspective
vineyards on the slopes and sandy tracts Lower Left Bank.

DA sprinkler irrigation of vineyards using fixed irrigation systems, loops LH-25/300, sprinklers
machine DF-120 "Dnepr" rebuilt DDA-100M.

Prand organization of the territory for vineyard irrigation using DDA-100M every 100m leave the road width of 6 m to cut temporary sprinkler and pass the unit, to deeper soil moisture before watering chyzelyuyut aisle at a depth of 25 cm s0. The best results are obtained when DDA-100M passes through the area irrigated by six to eight times depending on irrigation. When irrigation 500 m3 / ha productivity is 0.9 ha / year.

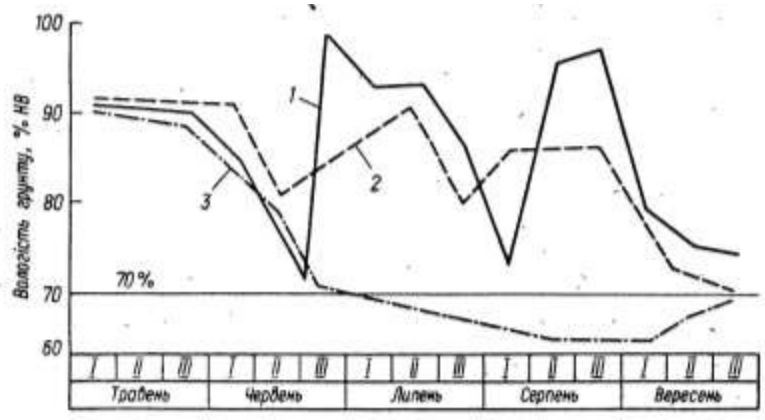
Reliable protection of shrubs with timely irrigation is achieved by spraying plants with fungicides and termination of irrigation for 1,5- 2 hours before sunset to evaporate water from the leaves. Essential

notSprinkling disadvantages - significant loss of water to evaporation physical.

Onsoil irrigation has several advantages over other methods of irrigation. With this method, water is supplied directly to the
to rootcontaining soil, achieved a significant (two and a half times the ground irrigation) water saving, eliminates the need for cutting furrows and after irrigation kultyvatsiy, it is possible to irrigate nesplanovani area and automate watering.

Notdisadvantages onsoil wateredof - zarostanof porousx
fromvolozhuvachiv roots, leading to deterioration in the quality of irrigation, and the high cost of building irrigation systems.

DropIrrigation is from the standpoint of agrotechnical fully meets the needs of grapes in water / With a network of plastic pipes and drip installed on
middle distance between the bushes, water is supplied to each plant (local) small norms 5.12 l / h (drop by drop) than
achieved a substantial savings (two to three times). Fertilizing with irrigation water in the root layer of soil enables plants to use them more effectively than with other methods of irrigation, reducing fertilizer application rate by half. This method
wateringto be used in the vineyards of the difficult terrain, it does not interfere with other simultaneous transactions (cultivation, spraying, tying the shoots). Irrigation major advantages is the complete automation of irrigation technologies and leveled soil moisture (80-90% NV) during the active growing season of grapes (Fig. 2).



Rice. 2. Dynamics of soil moisture in the Vineyard 1 - furrow irrigation; 2 - with drip irrigation; 3 - without irrigation.

Prand terrestrial plants watering and irrigation irrigation during the fall in stressful conditions, when a short time

soil moisture increases from 70% to 100 HB. Irrigation plants creates good conditions, resulting in activation of physiological processes, significantly increases the yield of grapes (Table. 1). Further technical improvement Irrigation systems (simplification of water, reducing construction costs, etc.). Will allow widely adopted it in viticulture southern Ukraine, it is especially effective on farms and in home gardens and suburban areas.

Bahomu out of irrigation of vineyards is obtained when respected deadlines and quality standards spend watering. This is achieved by careful control of irrigation technology that
will purposefully grown crop with the settings value and quality of grapes. High efficiency irrigation can be expected only if timely and quality
performed all complex ahropryyomiv irrigated viticulture taking into account local conditions and biological
osoblyvosteand grapes, which is impossible without the use of modern information technology systems for monitoring the status of agricultural land. These systems enable incl phases of growth determined daily average
oUru air and precipitation determine the need for moisture grapes.

PereDr. beginning of phenological observations should give a general description of conditions for growing grapes, soil, topography, depth of subsoil water, the presence of forest plantations, vineyards age, the strength of growth of bushes and their habit type
shapingI bush, the magnitude of the load and the main
welcomeand
Machinery.

Aboutsoblyvo valuable monitoring the dynamics of growth, maturation shoots, nature and degree sprinkled generative organs, the nature and degree of ripeness of fruit.

Andnformatsiya by these terms makes it possible to identify patterns of growth and development, and the response of plants to changing environmental conditions.

Conclusions

Vynohrad refers to plants that consume a significant amount of moisture, but can grow in low water availability. When lack of soil moisture is less absorbed by soil nutrients, reduced growth and vine yield and quality.

In thestanovleno high efficiency drip irrigation grapes. The traditional system of drip irrigation requires its improvement through the use of monitoring equipment

available moisture in the soil and appropriate irrigation grapes. These tasks can be realized through the development and implementation of technology SR- viticulture, as for Ukraine, and taking into account the features peculiar to Iraq.

Beforeno calculations of technical, technological and information provision shows that it will optimize the flow of water during the growing season of plants with a total reduction of 20% needs.

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Bazhnыm aspect vыraschyvanyya grape javljaetsja The irrigation. Znachytelnuyu otdachu from vineyard irrigation poluchayut, when pryderzhyvayutsya srokov, standards and qualities Conduct polyvov. Adjusted Peak Efficiency drip irrigation grapes. Traditional system of drip irrigation trebuet ee usovershenstvovanyya putem Using Monitoring equipment for ymeyuscheysya moisture in the soil and water systems osuschestvlenyya sootvetstvuyuscheho grapes. These task can be realyzovat putem development and technology osuschestvlenyya SR-grape uslovyy As for Ukraine, and so with uchetom Features, svoystvennыh Irak.

Grapes, SR-technology, MONITORING, ecology irrigation.

Irrigation is important aspect of viniculture. A considerable return from irrigation of vineyards is collected, when terms, norms and quality of conducting of watering, are adhered. High efficiency of tiny irrigation of vine is set. The traditional system of tiny irrigation requires its improvement by use of equipment for monitoring of present moisture in soil and realization of proper watering of vine. These tasks can be realized by development and realization of CP-technology of viticulture,

both for terms of Ukraine, and taking into account features incident to Iraq.

Vine, SR-technologies, monitoring, ecology of irrigation.

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ECSPLUATATSIYNI engine parameters IN APPLYING biodiesel

G.A. Golub, PhD VV Chub Engineer

Powered theoretical dependence and the method of determining the operating parameters of the diesel engine depending on load type and characteristics of the fuel, the analysis of the theoretical and experimental data dependencies. The effect of biodiesel heating performance of the diesel internal combustion engine.

Mano-tractor unit, diesel, diesel biofuel heating.

Resolutionska problem. ParameterAgrotechnological and environment vary quite widely and affect the technical and economic performance of the machine and tractor unit (AIT). The issue of the relationship between the parameters of the MTA and its indicators in the performance of manufacturing operations, will perform simulations and obtain data to optimize its performance, which is especially important when used in a fuel biodiesel (DBP) based on methyl esters of fatty acids of vegetable oil.

AnaLiz recent research. The research [1] marked reduction of engine power during the transition to DBP and indicated the need for taking into account structural features and modes of operation on power and fuel-economic performance of the engine. According to research [2] for the engine MD-14 when using 100% DBP observed maximum effective reduction of engine power by 12% and increase in specific fuel consumption by 10-13%. In [3, 4], the authors experimentally