

IRRIGATOR UKRAINE

Irrigation expert





Engineering solutions



ENGINEERING AND DESIGN DEPARTMENT

- Qualification Serial Staff-certified specialists
- Profile training from such leaders of the irrigation market as: Metzer, TalGil, Hunter, Amiad, Bermad...
- Development and execution of projects for various irrigation systems



OPTIMAL ENGINEERING SOLUTIONS

- Creation of irrigation projects of any type - from simple to combined: drip irrigation, microspray, irrigation machines
- Design and selection of equipment for pumping stations



IRRIGATION AUTOMATION

- Design and implementation of automated irrigation control systems
- Systems fertigation, assembly fertigation tables for individual needs of the client



SERVICE WARRANTY

- Irrigation systems installation
- Technical support and advice at all stages
- System training
- Service and technical support of projects

Advantages of drip irrigation systems



- High yields with lower water costs per unit of production
- Improving product quality
- Reduced moisture loss due to evaporation less surface area to be wetted
- Reduced weeds compared to other irrigation methods
- Efficient use of water resources the possibility of irrigation with low irrigation rates and with short inter-irrigation periods
- Efficient use of fertilizers feed directly to the root layer
- Subsurface drip irrigation multi-year underground system with minimum annual costs



Drip tube assortment

FLAT DRIPTRAYS







COMPENSATED DRIPTRAYS



ARRIT

Gardens, vineyards Subsoil watering

NBAR

Impulse irrigation



Own production is our advantage

- Individual approach to selection of equipment and needs client.
- Drip lines with waterfall from 0.85 to 4 l / h, and with wall thickness: from 5+ to 46 mil (0.12-1.15mm), the distance between droppers can be realized in the range of 15cm to 3m.
- □ The plant has 4 production lines with a total capacity of more than 400,000,000 m / year. There are plans to further increase production capacities.
- □ The production facilities allow organizing irrigation annually on an area of more than 50,000 hectares.
- Since 2017, the products of Irrigator Ukraine have been included in the List of agricultural machinery and equipment of domestic production, the cost of which is partially compensated from the state budget.







Flexible hose production LFT





Fittings production



We select only the best equipment from the best suppliers for the implementation of our projects

In order for watering to be as effective as possible, it is necessary to find answers to the following questions:



How much irrigate?

The ideal solution is watering using tensiometric sensors, which show the real need of plants for water.

After all, waterlogging of the soil, as well as insufficient watering, negatively affects the development of plants. Tensiometer watering, in addition to significant savings in water and fertilization, helps to avoid plant stress and helps to reduce the number of diseases.



Tensiometers. Principle of operation

The sensors are located next to the roots. When the plant requires more water, the suction power of the roots increases, and therefore the tension measured by the sensor. Tensiometers measure the degree of water demand of plants, due to which watering is carried out efficiently, waterlogging of the soil is not allowed. In addition to saving water and fertilizers, such a system has a significant positive effect on the formation of the air-water balance of the soil. Dosed irrigation ensures the correct distribution of water, better air exchange in the soil, and helps to avoid salinization in the root zone.



Diffuse-gravitational movement of water

Gravity characteristic

Diffuse and gravitational movement of water





Tensiometer measurement graph for conventional drip irrigation with a given irrigation rate Graph of tensiometer measurements with pulsed drip irrigation with irrigation according to the plant reaction

Root Activity. Conventional and pulse irrigation





AUTOMATION

SYSTEMS

Automation

One of the main tasks that our company sets itself is the maximum adaptability and ease of use of imigation systems for the farmer.

REMOTE ACCESS to the indicators of the sensors

EXPENDITURE PLANNING based on data analysis

ACCUMULATION and STORAGE data

Operational CONTROL and

CONTROL behind the working

process

0

්ගට

The introduction of automation of imigation gives the user a lot of advantages: to quickly carry out full control and management of the imigation process, constantly monitoring the state of plants in various areas, and also to avoid the disadvantages of manual control as much as possible.

CONTROL AND CONTROL





- watering based on sensor readings
- use of "scenarios" of irrigation
- minimization of the "human factor"
- remote start of various devices (pump, node fertigation etc.)

Water consumption data per hectare for two FH with automated watering and watering without automation

Cherkasy Region

Crop: Corn

Irrigation system: SDI

2020	with Automatization	T max	Precipitation	Precipitation	Sum	Sum/Hectare
square	48	°C	mm	m³	m³	m³/ day
Apr		22,7	17,0	170	170	0,1
May	1 562	27,2	104,7	1 047	2 609	1,8
Jun	21 622	32,4	64,8	648	22 270	15,5
Jul	46 366	32,9	18,4	184	46 550	31,3
Aug	57 174	32,7	15,7	157	57 331	38,5
Sep	6 844	33,8	22,0	220	7 064	4,9
Oct	415	22,0	61,8	618	1 033	0,7
Total precipitation, mm/year			304		137 027	
TOTAL m ³ /hour	133 983					
water outflow per 1						
hectare per season	2 791,3				2854,7	

2019	w/o Automatization	T max	Precipitation	Precipitation	Sum	Sum/Hectare
square	48	°C	mm	m³	m³	m³/ day
Apr	3 068	24,3	21,5	215	3 283	2,3
May	21 311	29,1	54,7	547	21 858	14,7
Jun	39 250	32,5	99,4	994	40 244	27,9
Jul	61 448	32,7	44,0	440	61 888	41,6
Aug	60 436	34,4	28,6	286	60 722	40,8
Sep	21 854	31,1	41,5	415	22 269	15,5
Oct	1 319	25,1	30,0	300	1 619	1,1
Total precipitation, mm/year			320		211 883	
TOTAL m ³ /hour	208 686					
water outflow per 1						
hectare per season	4 347,6				4 414,2	

WATER SAVING: 1,556.3 m³ / ha

Zaporizhia Region

Crop: vegetables

Irrigation system: Drip irrigation

2020	with Automatization	T max	Precipitation	Precipitation	Sum	Sum/Hectare
square	200	°C	mm	m³	m³	m³/ day
Apr		22,7	11	110	110	0,0
May	115 510	25,2	64	640	116 150	18,7
Jun	138 530	34,2	42	420	138 950	23,2
Jul	167 400	37,2	35	350	167 750	27,1
Aug	83 920	34,8	10	100	84 020	13,6
Sep	63 239	35,1	23	230	63 469	10,6
Oct	12 010	25	21	210	12 220	2,0
Total precipitation, m	m/year		206			
TOTAL m ³ /hour	580 609				582 559	
water outflow per 1						
hectare per season	2 903,0				2 912,8	

2019	w/o Automatization	T max	Precipitation	Precipitation	Sum	Sum/Hectare
square	120	°C	mm	m³	m³	m³/ day
Apr		23,8	40	400	400	0,1
May	2 396	31	72,6	726	3 122	0,8
Jun	221 327	33,6	39	390	221 717	61,6
Jul	297 680	34,2	42	420	298 100	80,1
Aug	93 180	33,6	18	180	93 360	25,1
Sep	20 620	32	19	190	20 810	5,8
Oct	370	25	26	260	630	0,2
Total precipitation, mm/year			256,6			
TOTAL m ^s /hour	635 573				637 739	
water outflow per 1						
hectare per season	5 296,4				5 314,5	

WATER SAVING: 2,393.4 m³ / ha



118 ha

316 ha

94.5 ha

- To maximize irrigation area, because growing on irrigation is more cost-effective.
- Saving water and energy resources, which can be obtained by introducing efficient modern irrigation systems.

In the example below, we show the benefits of an efficient irrigation system compared to a standard irrigation system.



RESPONSIVENESS OF CROPS IN IRRIGATION (%) with optimal respect for all other factors





IRRIGATION PROJECT ODESSARYBHOZ. Standard Irrigation Project Sprinkler machines -763,4 Ha

IRRIGATION PROJECT ODESSARYBHOZ. Standard Irrigation Project

Total land area – 1040 Ha

Standard Irrigation Project propose irrigation only by Sprinkler machines. Total irrigated Area is 763,4 Ha or 74%

Water consumption per 1 ha is 5000 m³.



IRRIGATION PROJECT ODESSARYBHOZ. Efficient water saving Irrigation Project Sprinkler machines - 611 Ha

Subsurface Drip Irrigation– 328,9 Ha



Impulse Drip Irrigation-61 Ha

IRRIGATION PROJECT ODESSARYBHOZ. Efficient water saving Irrigation Project

Total land area – 1040 Ha

Efficient water saving Irrigation Project

Total irrigated Area is 1000,9 Ha or 97%

Part of complex Irrigation system	Irrigation area, Ha	Water consumption per 1 ha, m ³
Sprinkler machines	611	5 000
Subsurface Drip Irrigation	328,9	2 800
Impulse Drip Irrigation	61	2 200
Total irrigated Area	1000,9	

Water saving by SDI 328,9 (5000-2800) = 723 580 m³ Water saving by Impulse Drip Irrigation 61 (5000-2200)=170 800 m³ Total water saving by project is 894 380 m³

IRRIGATION PROJECTS COMPARISON

PROJECT	Irrigation area, Ha	% of using irrigated land	Water saving, m3	Money saving from reduced water consumption , USD	Yield increase, tons	Additional Gross Income, USD
Standard	763,4	74	-	-	-	
Efficient water saving	1 000,9	97	894 380	99 375	4 507,5	1 126 875,0

Corn productivity on different types of irrigation Gross Income per ha

Irrigation System	Price per ton 17.01.2022, USD	Productivity, ton per Ha	Water Expenses, Ha USD	Water saving on Drip Irrigation, m ³	Gross Income per Ha
w/o Irrigation	250	6,0	-	-	1 500
Sprinkler machines	250	10,0	555	0	2 500
SDI	250	15,0	310	2 200	3 750
Impulse Drip Irrigation	250	18,0	245	2 800	4 500



Global warming is negatively affecting the water supply of agricultural production systems. In many parts of the world, the amount and regularity of precipitation has changed, droughts and floods are increasing, and as a result, water scarcity and competition for water resources are increasing.

Today, almost the entire territory of Ukraine is a zone of risky farming. We cannot stand aside from the urgent for Ukraine problem of saving and efficient use of water resources.

Using our many years of experience in the field of irrigation, as well as the experience of our foreign partners, we are constantly looking for energy efficient and water saving technologies. Subsoil irrigation, impulse irrigation, as well as the automation of irrigation processes gives a tremendous positive economic and environmental effect, which many of our clients were able to appreciate.



INTEGRATED APPROACH IN IRRIGATION - EFFECTIVE USE OF IRRIGATION LAND



EXAMPLE OF A COMBINED IRRIGATION PROJECT





COMPLEX SOLUTIONS

WE THANK YOU FOR YOUR ATTENTION!

LLC "Irrigator Ukraine" CHORNOMORSKOGO KOZATSTVA Str., 28, Odessa, Ukraine 0 800 30 20 10 www.irrigator.ua

