ISSN NO: 2771-8840
Date of Publication: 11-06-2022

Cultivation Of Tomato Vegetables By Watering Under A Black Polyethylene Film.

Ilxamov Nortoy Muradovich[1, Professor],
Ganiyev Sanjar Ernazarovich[2], assistant,
Toshpulatov Chingizxon Vali o'g'li[3, assistant]
Tashkent State Agrarian University

Abstract: In the world of Agriculture, a wide range of scientific research is being carried out to reduce water consumption in irrigation of crops, to investigate the level of soil moisture and water consumption in various irrigation methods, to improve and increase fertility of soil agrophysical, agrochemical and microbiological properties, as well as to increase the yield of vegetable crops in various irrigation methods and Development, improvement and wide introduction into practice of optimal economical irrigation methods in the care of planting vegetable crops in spring and summer terms in conditions of water shortage is considered as one of the pressing issues in agriculture, reducing water consumption in irrigation of crops, investigation of soil moisture levels and water consumption in various irrigation methods, improvement of agrophysical, agrochemical and microbiological, also, extensive scientific research is carried out to increase the yield of vegetable crops in various irrigation methods and reduce the phytosanitary status of the field (the density of weeds and pests, the degree of disease). Development, improvement and wide introduction into practice of optimal economical irrigation methods in the care of planting vegetable crops in spring and summer terms in conditions of water shortage is one of the pressing issues in agriculture.

Key words: Economical methods of irrigation, drip, rut, rain from under the ground, black film is the norm of water, the amount of water saved. soil, aggregates, grainadorlik, productivity.

A wide range of measures are being taken to ensure food security, effective use and protection of water and land resources in the Republic. Bunda is one of the urgent tasks, especially the use of agromeliorative measures against soil erosion, the development and implementation of water-saving innovation technologies for irrigation of vegetable and potato crops during spring and summer periods. In this regard, the strategy of action on five priority areas of further development of the Republic of Uzbekistan in 2017-2021 "...the introduction of intensive methods, the most advanced, modern agrotechnologies that save water and land resources, further strengthening the food security of the country is defined as an important " strategic task.

Purpose of the study. In the conditions of typical soils irrigated in the Tashkent region, in the care of carrots, white cabbage, sweet pepper, tomato and potato crops for a long period of fairy tales, evening and autumn, 40 tons of organic fertilizer per hectare for abundant and high-quality harvest from them is fertilized and fertilized, as well as improving water-efficient irrigation methods, improving the phytosanitary

Methods of the study. Carried out in research, observation, analysis and measurements" methods of conducting field experiments", B.A.Dospekhov's M-1986 year, in the method of multi-factor dispersion analysis and V.F.Beliki "methodology "," recomendation po technologii vozdelivanii ovotshe, bakhchevix " 1988 year.Statistical analysis of Tashkent and experimental data was carried out in computer programs" Excel 2010 "and" Statistica 7.0 for Windows", as well as mathematical analysis. The research was carried out in stone DAU scientific research and training experience in 2014-2018 years.

Results of the study. Drip irrigation method of economical irrigation methods the role of soil fertility restoration, conservation and enhancement is incredibly great. Has a positive effect on the agrophysical and agrochemical properties of soil. According to the results of agrophysical surveys, the amount of aggregates larger than > 0.25 mm in the layer of 0-20 CM in the control variant was 18.5%. The amount of macroaggregates increased by 20,3% or 1,8% compared to the control in the irrigation method from under the ground. The amount of aggregates greater than 0.25 mm microaggregates < 0-20 CM accounted for 81.5% in the control variant. In the controlled variant of 20 cm layer by drip irrigation method 82,3% or the

ISSN NO: 2771-8840
Date of Publication: 11-06-2022

amount of microagregates 1– 025 mm increased by 0.8%, the amount of macroagregates 64,5%. In the drip irrigation method, there was an increase of 67,9% or 3,4% compared to the control.

The effect of irrigation method on aggregates conducted during the growth of soil in the field of cultivation of sweet pepper with a narrow Tashkent variety of experimental field was studied. The structural coefficient was equal to 1,81 in the control option. The method of drip irrigation was 2,11. (Table 1).

1 - table

Depending on the method of irrigation, the variety of "narrow Tashkent" of sweet pepper is subject to changes in the soil aggregates of the planted experimental area (2014-2016 yy.)

Irrigation methods	**Soil layer, см**	**Soil layer,>0,25 мм %**	**Soil layer <0,25 мм %**	**Soil layer 1–0,25, мм %**	**Soil layer >10мм<0,25 мм %**	
Rut (control)	0-20	18,5	81,5	64,5	35,5	1,81
	20-40	17,3	82,7	67,2	32,8	2,04
Doing rain	0-20	19,0	81,0	61,3	38,7	1,58
	20-40	16,9	83,1	65,2	34,8	1,87
Drip	0-20	17,7	82,3	67,9	32,1	2,11
	20-40	16,0	84,0	65,1	34,9	1,88
From under the ground	0-20	20,3	79,7	67,9	32,1	2,04
	20-40	16,4	83,6	66,3	33.7	1,96

It was noted that in the methods of precipitation and subsurface irrigation, grainadorlik was at slightly higher rates than the control option. When the Bunda was used for sprinkling irrigation, the average grain size in the 0-30 cm layer wasadorlik 49.3 and the grain size in the 0-60 cm layer was 49,0% while in the underground irrigation method was around 50,5 and 51,1% respectively. In the drip irrigation method, it was known that the volume mass in the 0-60 cm layer was 1,34 g/cm3 and grainadorlik 50,2%, or the volume mass in relation to the control option increased by 0,06 g/cm3 and grainadorlik 1,5%. Highest grainadorlik drip and vomiting in the methods of irrigation from under the ground.

2 – table

The effect of irrigation methods on the agrophysical properties of the planted experimental area soil of the "narrow Tashkent" variety of sweet pepper

Irrigation methods	**Soil layer, CM**	**2015 y**		**2016 y**		**Two years on average**	
		Soil layer, CM г/см^3	**Soil layer, CM**	**Soil layer, CM**	**Per r, %**	**Soil layer, CM. г/см^3**	**Soil layer, CM,%**
Rut control	0-30	1,32	50,1	1,35	49,8	1,33	49,5
	0-60	1,37	49,9	1,37	48,6	1,37	49,2
Drip	0-30	1,33	50,2	1,36	50,1	1,34	50,2
	0-60	1,38	48,8	1,38	48,3	1,38	48,6
Doing rain	0-30	1,30	49,1	1,35	49,6	1,32	49,3
	0-60	1,36	49,4	1,34	48,6	1,35	49,0
From under the ground	0-30	1,31	51,1	1,36	49,8	1,32	50,5
	0-60	1,37	49,1	1,37	48,7	1,37	48,6

The results of the agrochemical analysis of 0-30 cm layer of soil showed that at the beginning of the flowering period the nitrogen content of nitratli (Table 3) was equal to 24,6 mg/kg in the irrigation method, 27,5 mg/kg in the irrigation method under the ground, and at the end of the irrigation period in the control The decrease in nitrate nitrogen at the end of the growth period was noted in other methods of irrigation. In the method of sprinkling irrigation often have the formation of stiffness, the plant can not absorb well

ISSN NO: 2771-8840
Date of Publication: 11-06-2022

mineral fertilizer because of the High lack of soil moisture. Therefore, it was observed that the growth and development of vegetables is rather sluggish. At the end of the period of application by drip and underground irrigation method was 12,4–15,3 mg/kg. The amount of nitrogen with ammonia was found to be 0-30 mg/kg at the beginning of the validity period in the control variant 35 cm, at the end of the validity period 22 mg/kg. This is evidenced by the fact that plants absorb ammonia nitrogen during the growth period. Ammonia nitrogen does not accumulate into the soil and plant composition. At the beginning of the period of application of ammonia nitrogen in the underground and drip irrigation method was 36-38 mg/kg, at the end of the period of application was 20-28 mg/kg. This is the highest indicator, in the irrigation method from under the ground, mineral fertilizers in the layer of 0-30 CM are evenly distributed, a favorable feeding regime is created for plants.

3–table

Depending on the methods of irrigation, the "narrow Tashkent" varieties of sweet pepper are planted with agrochemical indicators of the experimental area soil in a layer of 0-30 CM, mg/kg (2014-2016) y.y

	Nitrate (NNO_3)	**Ammonia extract ($N-NH_4$)**	**Waitress phosphor (P_2O_5)**	**Replaceable, potassium (K_2O)**	**Soil reaction, (pH)**
Rut (control)	24,6	35,0	40,0	176,0	6,9
Drip	26,5	36,0	45,0	178,0	7,0
Doing rain	27,0	34,0	42,0	160,0	7,1
Watering from under the ground	27,5	38,0	47,0	163,0	7,2
At the end of the validity period					
Rutlab (supervision)	11,0	22,0	18,0	116,0	7,0
Drip	12,4	20,0	26,0	131,0	7,1
Rainwater	16,3	31,0	18,0	114,0	7,0
Water from under the ground	15,3	28,0	32,0	110,8	7,1

The element of assimilated phosphorus is of great importance in the development of plants, especially in the fruit ripening, and at the beginning of the validity period was a controlled variant – 40 kg/mg by the method of ruminating irrigation, at the end of the validity period-18,0 kg/mg. Phosphorus fertilizer was 42 (Table 3) at the beginning of the period of application in methods of precipitation, drip and subsurface irrigation, respectively (45-and 47 mg/kg, at the end of the period of application 18; 26 and 32 mg/kg. It is proved that the best feeding procedure is by drip as well as by watering from under the ground.

In economical irrigation methods, mineral fertilizers were given mainly in 2-4-6-8 chi irrigation, in addition to irrigation, the annual amount in water was divided into 4 parts. The feeding regime with Mineral fertilizers was suspended for 15-20 days before fruit ripening. Damage in the method of drip irrigation has yielded good results in the use of water-soluble chemical prerates, even in the fight against cones, diseases and weeds. Diseases and pests decreased by 30-35 percent compared to the control option.

When the fairytale vegetable crops were traditionally irrigated, the norm of seasonal irrigation was 3716 m3/ha in carrots, 6206 m3/ha in white cabbage and 11594 m3/ha in sweet pepper crops. The most promising method in terms of types of vegetable crops is drip irrigation, the norm of seasonal irrigation during the three-year research period was 1759, 3237 and 5924 m3/ha. In the Bunda season, irrigation water saving was 52.3% in carrots, 47.9% in white cabbage and 48.9% in sweet pepper. Irrigation methods had different effects, respectively, according to the timing of water conservation, planting of crops.

The most frequent saving of water in the morning carrots is noted in the variant where the drip irrigation method is used. In this experimental variant, the total seasonal irrigation standard was 1759 m3/ha and the control variant was 52.3% water saving (4jadval) compared to the raked irrigation method (3716 m3 / ha).

ISSN NO: 2771-8840
Date of Publication: 11-06-2022

4-table

Seasonal irrigation Meyers of vegetable crops according to different irrigation methods , m3/ha (2014-2016 yy)

Irrigation methods	Carrot		cabbach		Sweet pepper	
	Seasonal water consumption, м³/га	Tap water, %	Seasonal water consumption, м³/га	Tap water, %	Seasonal water consumption, м³/га	Tap water, %
Rut (control)	3716	0	6206	0	11594	0
Doing rain	1981	46,7	4857	21,7	5518	52,4
Drip	1759	52,3	3237	47,9	5924	48,9
From under the ground	2290	38,4	4794	39.9	5324	54,1

The next place in terms of saving water was occupied by the options for sprinkling and subsurface irrigation. It was found out that the amount of water saved in relation to the control was 46,7% and 38,4% respectively.

From the economical irrigation methods, the highest yield in the drip irrigation method under transparent and black polyethylene film was obtained 26,7 t/ha, in the drip irrigation method under black film, an additional yield of 2,4 t/ha compared to the control option. In the drip irrigation method, the average three-year yield of sweet pepper was 25,6 t/ha, with an additional yield of 1,3 t/ha compared to the control option. In the control option, the yield was 24,3 t/ha. Under the transparent and Black Film formed an additional 26.1 t/ha to the yield of drip irrigation sweet pepper 1,8 t/ha.

It is noted that the scheme of convenient planting of sweet pepper in a method of drip irrigation of a narrow Tashkent variety gave the highest result-70x15 CM, the range of droppers 0-10 CM. As a result of the use of black plasters in the method of drip irrigation in the cultivation of sweet pepper, the Black film has the property of accumulating darkness and heat in the top layer of the soil (Table 5)

5–table.

The effect of drip irrigation under transparent and black film on the yield of sweet pepper t / ha (2014-2016 yy).

Options	2014 y	2015 y	2016 y	The public chauvinism	With regard to control, t/ha	Seasonal water consumptionм³/га	Water consumption for 1 Centner harvest м³/ц
Rut irrigation	**23,2**	**25,5**	**24,3**	**24,3**	**0**	**11594**	**477,1**
Drip	**24,2**	**26,7**	**25,6**	**25,6**	**1,3**	**5811**	**226,9**
Under transparent film	**24,4**	**27,5**	**24,9**	**26,1**	**1,8**	**5811**	**223,0**
From under the Black Film	**25,4**	**28,5**	**26,4**	**26,7**	**2,4**	**5811**	**211,7**
ЭКФ 05	**4,0**	**2,3**	**3,3**				
Sx,%	**1,1**	**0,9**	**1,4**				

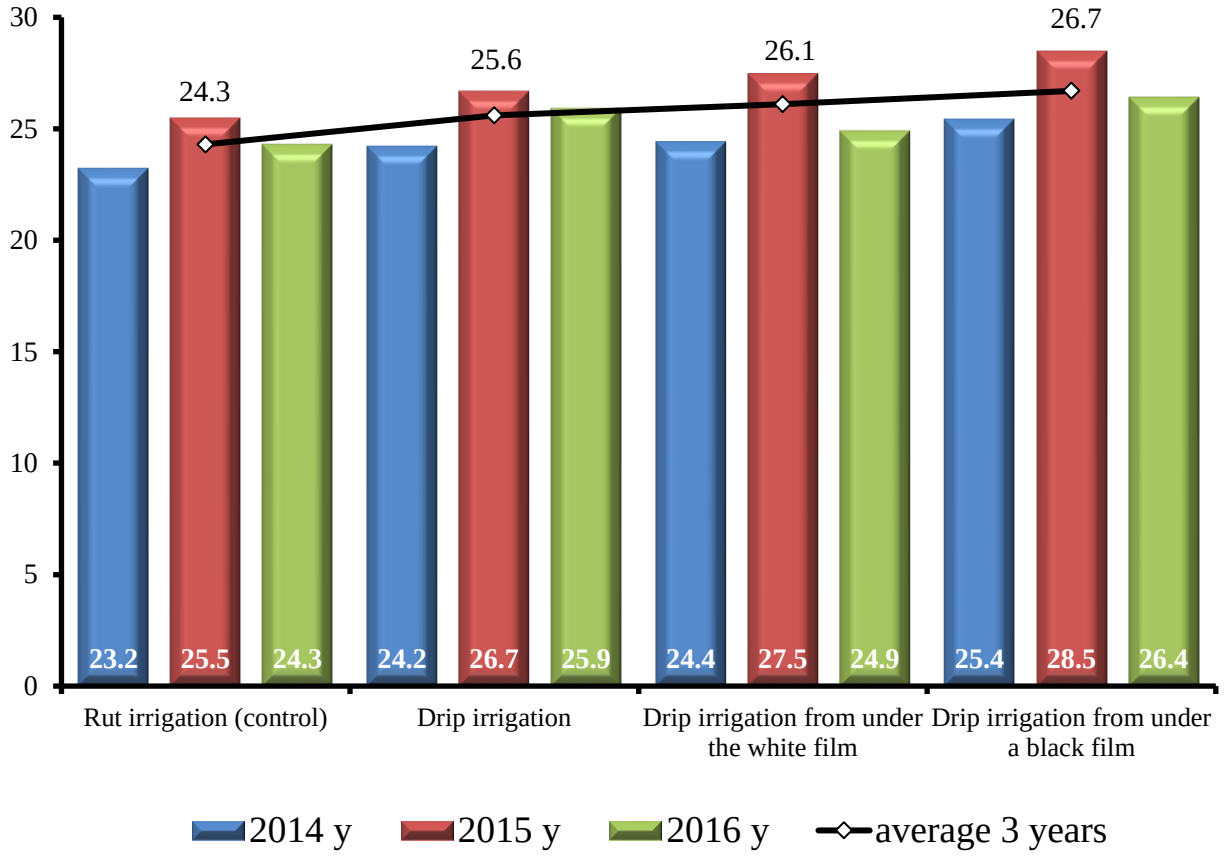
Such conditions have paved the way for a reduction of up to 70-80% of annual weeds and a reduction of up to 60-75% of perennial weeds, resulting in a reduction in the germination of seeds of weeds.

ISSN NO: 2771-8840
Date of Publication: 11-06-2022

Studies have shown that mulching vegetable crops with a film in addition to drip irrigation has led to a significant increase in yield, saving water spent for 1 Centner harvest, on account of the non-cultivation of weeds and the long-term preservation of moisture in the soil.

For the cultivation of 1 Centner when sauerkraut was sown, water was spent 477,1 m3/ts, while drip irrigation method was used 226,9 m3/ts, improved, that is, under transparent and black film, drip irrigation method was used 223,0 and 211,7 m3 /ts or 2,1 and 2,2 times less water was spent.

In the drip irrigation method, the average three-year yield of sweet pepper was 25,6 t/ha, with an additional yield of 1,3 t/ha compared to the control option (Figure 1).



2–figure
Improved drip irrigation methods for sweet the effect of pepper on the yield of varieties, (2014–2016y).

In the control option, the yield was 24,3 t/ha. In the 2014-2016 years in the method of drip irrigation, productivity was increased evenly, in the method of drip irrigation under transparent and black film, respectively, 25,6: 26,1 and 26,8 t/ha. This is due to the lack of erosion in the soil and the fact that the soil is subjected to 40 tons of organic fertilizer every year.

6–table
The effect of irrigation methods on the chemical composition elements of the fruit of sweet pepper, on the account of % (2014-2016 y)

Indicators	Irrigation methods							
	rut (control)		drip		drip on a black film		in a drip white film	
Dry matter, %	6,2	100	6,4	103,9	6,8	109,6	6,5	102,1
The general,%	4,6	100	4,8	104,3	4,7	115,2	5,0	108,6
Vitamin C, mg/%	41,5	100	48,2	106,1	51,4	106,1	50,2	101,2
Nitrate, mg/kg	183,0	100	116,0	63,4	121,3	66,3	192,0	104,9

ISSN NO: 2771-8840
Date of Publication: 11-06-2022

As a result of biochemical tests of the fruit content of sweet pepper, it was determined that the amount of dry matter increased by 0,2-0,4% in drip irrigation methods compared to the control option (table 10). As a result of a decrease in the total sugar content 2,2% and vitamin C content 9,9 mg/% and vice versa nitratli nitrogen content from 183,0 mg/kg to -121,3 mg/kg compared to the control in the drip irrigation method under the Black film, the quality of the product improved. There was an increase in soil granularity in the methods of drip irrigation under the transparent and black film of vegetable crops.

It has been determined that the economic efficiency of tomato vegetable crops is different when they are cultivated, drip and improved, that is, when they are grown in drip irrigation methods under white and black films. The pure benefit in the method of drip irrigation under the Black film, that is, improved the varieties of narrow Tashkent of tomato Sitora and sweet pepper, reached an average of 8909094 and 10 000107 soums/ha, the profitability rate reached 60,9% and 65,2% per hectare.

Conclusion

In the conditions of typical burlap soils of the Tashkent region, which have been irrigated since ancient times, in order to ensure high and high-quality harvest from vegetable crops (carrots, cabbage, tomatoes and sweet pepper eggplant) and potatoes, economy of Water Resources and reduce the spread of weeds, diseases and pests in the spring and summer periods;

–tomato from tomato vegetables. When growing Sitora and sweet pepper in a narrow container and eggplant VIR-95 varieties with drip irrigation methods under a black film, it is recommended to drip irrigation in the order of 65-70-75% of the moisture before watering the soil to 290,6 m3/h and 20 times improved, that is, drip irrigation under a black plnyoka.

References

1. Бочарников О.М., Бочарникова В.С. Затраты на капельном орошение окупается за один год // Ж "Картофель и овощи" М.2007 №7 С. 11.
2. 2.Багарников В.С. Внутирипочвеное орощение эффективной способ полива томата. Ж. "Картофель и овощи". №5.М. С. 12. 2010.
3. Беляева Т.В. Региональные проблемы использования природных ресурсов в орашаемом земляделии США. - М.: 2001. С. 63.
4. 4.Бакурас Н.С. Лучинина Е.Г. Ўзбекистон шароитида хажми кичик иссиқ-хоналарда сабзавот етиштиришда томчилатиб суғориш усулини қўллашга доир тавсиялар. Тошкент. 1991. Б. 34.
5. Бородычев В.В. и др. Затраты на выращивание перца и баклажана в тоннелях при капнльном орошении окупается за один год.ж "Картофель и овоши". №8. 2009. С. 10.
6. Безбородов Ю Г., Эсанбаев М.Ю. Ирригацион эррозиясига мойил тупроқларда ғўзада суғориш технологиядарини такомиллаштириш.
7. Лев В.Т Орошаемое земляделие Т-1981 г В 103
8. 8.Литвинов С.С. Научные основы современного овощеводство. М -2008 С.8-12
9. 9.Зуев .В.А. Овощеводство защищенного грунта. Т- 1985 г С.125
10. Зуев В.И., Мавлянова Р.Ф., Дусмуратова С.И., Буриев Х.Ч. Овощи -эта пища и лекарство. 2018 е С 22-42
11. Икрамов Р.К., Мамедов СА. Томчилатиб суғориш тизими 2016 г.С.4-8
12. Паганяс К.П. Оптимизация основных свойст и режимов орощаемых типичных сероземов при искусственых структурообразаватедьями.Т-1982. С. 105-112.
13. Махсудов Х.М., Акрамова Л.А. Новая технология поливе в мировой прак тике водосбережения САНИИР. 2001 г С.1-18
14. Нерозин С.А., Стулина Г.В. Опыт применение капельное орошение хлопчатника В Центральное Азии. Сб тезис доклад посвященной 90 лнтю САНИИРИ. Ташкент.2000г С 220-2014.
15. Нурматов Ш.Н. Дехқончиликда тупроқ агрегатлари ва коллоид-ли заррачаларнинг аҳамияти, Тошкент-2019 г.С 87.
16. Рамазонов О.Р. Суғориладиган ерларни самарадорлигини ошириш долзарб муаммо. Ж Ўбекистон аграр фани хабарномаси 2000 й № 2/8 .С80.

ISSN NO: 2771-8840
Date of Publication: 11-06-2022

17. Саилазимова С., Айтбаев Т.Е. Водосберегающие технологии орошение эфиктивного развитие овощеводство в Казахстана. Известие НАНРК 2016 г №2(32) .С.65.
18. Поганяс К.П. Оптимизация основных свойсв и режимов орошаемых типичных сероземов при исскуственно структуривании. Ташкент Изд-ва. Фан 1982й. С. 55-с.
19. Соколов Ю.В. Арбуз на капельном орошение// Картофел и овощи № 9 2013 г -14 с.
20. Юсупов Томчилаб суғориш афзалликлари Ж Қишлоқ хўжалиги 2011 № 5 Б-25-26.
21. Гараева Э.А. Капельное орошение лука. Ж.Картофельи овощи. №7 2014г -12- с
22. Расулов А Сув бу хаёт. Тошкент «фан» Мехнат 2010 й Б.44-54
23. Ganiyev S.E., Muminov K.M., Boqiev D.T.,Kurbanov I.G. Plant Cell Biotechnology and Molecular Biology 22(9&10): (Scopus 2021 ISSN: 0972-2025) - R. 105-110