Eastern Journal of Agricultural and Biological Sciences (EJABS)
ISSN: 2753-3247
Website: https://qabasjournals.com/index.php/ejabs

Role of color mulching on growth and yield of cucumber

Amer Abdullah Hussein Al-Jubouri[1] & Shamil Younis Hassan AL-Hamadany[2]

[1, 2]Hort. & Landscape Design Dept. College of Agriculture and Forestry, Mosul University, Mosul, Iraq
amer_ah_juboori@ uomosul.edu.iq
shamil@ uomosul.edu.iq

ARTICLE INFO

Received: November 11, 2022
Accepted: December 11, 2022
Volume: 2
Issue: 4

KEYWORDS

Mulching, cucumber, vegetative growth

ABSTRACT

This article was conducted to find out the functional role of colored plastic mulching and its effect on the Adjectives of vegetative growth and plant yield on vegetable crops, including the cucumber plant, due to its high needs for water and nutrients due to the multiplicity of the crop's pickings. Plant because it encourages the revitalization of living organisms in the soil, and this is done by improving the naturalism and chemical attributes of the clod

1. Introduction

Cucumber (Cucumis sativus L.) one of the prime crops of the Cucurbitaceae family. It is a staple crop in Asia. It is a close relative of the wild strain Cucumis sativus var. hardwickii .. It is one of the senior vegetable crops cultivated by humans, and India, Africa and China are the original home of cucumber (Wehner and Guner (2004).

Cucumber is eaten when it is physiologically immature with salad or for pickling and is used in various fields with other vegetables. Cucumber plant is creeping on the ground. It is a perennial, sweaty and strong plant with hairs perpendicular to the leaves and stems. Cucumber has tendrils that are not branched laterally and develops on the axis of the leaf. On growth and development, flowers appear in the axil of the leaf (Maqsood et al., 2004).

Water constitutes the largest percentage of the weight of the fruit, and It is nursing and iatric at the same time value because it ingredient the elements Ca, P, k, fe, vitamins A, C, B1, B2 and niacin. Cucumber contains18 Mg calcium and 0.01 mg niacin, and 0.02 mg riboflavin, as it is included in the diet as a result of cultural and social development in recent years.

Cucumber requires high temperatures for growth and production and can be planted in the spring or summer. It is sensitive to cold and dies when exposed to frost. It is an annual crop with deep roots. The plant may be limited and indefinite, or it may be usually compact, as the compact plants include hidden nodes that are shorter in length than the usually limited and unlimited plants (Jaffar and Fazal, 2014).

Sources review

Mulching means placing the cover above the soil surface horizontally or vertically to help the soil maintain moisture and heat. It is called mulching. As for the word covering, which means thing fester fleecy and loose (Bhardwaj and Soralia 2012). Delibaş (1994) explained that to increase the production of vegetable crops, three basic components must be provided for plant growth, which are climate, soil and plant, with some other measures to increase yield such as irrigation and the use of good quality seeds in addition to the provision of nutrients and control of diseases and insects and the use of some agricultural practices, including plastic mulching .

Many studies have indicated the importance of plastic covering, especially colored ones, which include the following colors (transparent, black, white, green, red, blue, silver, and earthy). Each of these colors has its own role in absorbing and reflecting solar radiation, which in turn affects the properties of Vegetative growth and yield in al-Jubouri cucumber plant (2018).

Many studies have indicated the arch influence of coat the clod with plastic in increasing production and quality with many vegetable crops and conserving irrigation water, especially when drip irrigation is used (Garza, 2001). There are three main types of plastic sheeting that are used commercially: black, colorless and transparent. Currently, there are many coverings, including silver, aluminum-coated, yellow, red, green, and blue (George et al., 2001), as a lot of research has shown that covering the soil is of great importance to plants.

Orzolek et al. (2003) tell that the interests with polyethylene coat field with cucumber, tomato and cauliflower are an increase in soil temperature, especially at the beginning of spring, a reduction in bush problems, an increase in soil moisture retention, a decrease in insect problems, and an increase in plant yield. It is highly efficient to take advantage of the nutrients in the soil. Maged (2006) when studying cucumber plants using a number of covers confirmed that the cover has an effect on raising the soil temperatures compared to the soil without cover, and this effect may be due to the effect of the color of the cover on the soil surface, as it was found that the soil temperatures under the transparent cover are higher than the rest. Coverings. While Ibeawuchi and Birnbaum (2007) in their studies on cucumber plants found that the color of the cover affects the soil temperature compared to the soil without covering, as it was found that black plastic absorbs radiation more than the rest of the covers, including visible radiation and long-wave infrared radiation. .

Demirkaya et al. (2022) indicated that the highest yield of cucumber plant obtained (12296.7 and 11783.6 kg / dunum) was under blue plastic and black plastic using drip irrigation, respectively. Compared with the lowest yield of the plant under patters grown without covering the soil and amounted to (7771). kg/dunum). In this way, the application of an additional treatment above the soil surface enhanced the watery appliance competency with plant and weeds were controlled and eventually the plant yield increased (Gerçek et al., 2017).

Happala et al., (2015) In previous learning,, it was found that the influences of dark colored leaf and plastic mulching on gherkins bounty were significant compared to control and that mulching It controls the growth and appear of the jungles. polychromatic coat influence to pickling cucumbers in the field (Torres-Olivar et al, 2018)

Gerçek and Demirkaya, (2020) They found that the plants grown under black and blue plastic had high values of eggplant yield. In further reading the impact dark and bluer cap with two various kinds of capsicum below glass home, the supreme yield was get under bluest color While there is no substantial variations among bluest and black cap (Gerçek and Demirkaya, 2021).

References

[1] Al-Jubouri Amer Abdullah Hussein (2018). The role of colored plastic soil covers and planting distances in the growth and yield of two hybrids of cucumber (*Cucumis sativus* L).cultivated in the unheated plastic house. PhD thesis. College of Agriculture and Forestry. University of Al Mosul . Mosul.

[2] Bhardwaj . R . L; and D. K . Sarolia (2012) .Effect of Mulching On Crop Production under Rainfed Condition: A Review . Int. J. Res. Chem. Environ..2 : (2) (8-20) .

[3] Delibaş L (1994). Sulama. Trakya Üniversitesi Tekirdağ Ziraat Fakültesi Basımevi, Tekirdağ, 199 sy.

[4] DEMİRKAYA, M; S. GERÇEK and D. IŞIK . (2022) Effects of Different Polyethylene Mulch Colors on Greenhouse Cucumber Cultivation . KSU J. Agric Nat 25 (Suppl 2): 538-544.

[5] Garza, R. (2001). Aportacion delpolietil one al in cremen to dela productivied agricola Contribucione Del C1QA en Agroplasticoc Pp.150.

[6] George,J;R.Hochmuth; C. Hochmuth and M. Stephenolson. (2001).Polyethylene mulching for early vegetable production in north Florida. Universtiy of Florida-institute of food and Agricultural Sciences.

[7] Gerçek S, Demirkaya M 2020. Effects of colored water pillows on yield and water productivity of eggplant. Irrigation and Drainage 69:658-667.

[8] Gerçek S, Demirkaya M 2021. Impact of colored water pillows on yield and water productivity of pepper under greenhouse conditions. Agricultural Water Management 250:1-7.

[9] Gerçek S, Demirkaya M, Isik D (2017). Water pillow irrigation versus drip irrigation with regard to growth and yield of tomato grown under greenhouse conditions in a semi-arid region. Agricultural Water Management 180:172-177.

[10] Haapala T, Palonen P, Tamminen A, Ahokas J (2015). Effects of different paper mulches on soil temperature and yield of cucumber (Cucumis sativus L.) in the temperate zone. Agricultural and Food Science 24(1):52-58.

[11] Ibeawuchi and Birnbaum. (2007). Effect of time of mulch application on the growth and yield of cucumber (*Cucumis sativus*) in Owerri, Southeastern Nigeria Izuchukwu Innocent Ibeawuchi, Opara Rose Iheoma, Oyibo Patricial Obilo, Obiefuna JC Department of Crop Science and Technology, Federal University of Technology, P. M. B.1526, Owerri.
[12] Jaffar A& W. Fazal. (2014). Effect of row spacing on growth, yield and yield components of cucumber varieties. Sci Lett; (2):33-38.
[13] Maged, A. E. (2006). Effect of Mulch Types on Soil Environmental Conditions and Their Effect on the Growth and Yield of Cucumber Plants J. App. Sci. Res., 2(2): 67-73.
[14] Maqsood A ; H. Abdul and A. Zarqa (2004) . Growth and yield performance of six cucumber *(Cucumis sativus* L.) cultivars under agro-climatic conditions of Rawalakot, Azad Jammu and Kashmir. *International* Journal of Agriculture & Biology*,* 6 (2*),* 396-399.
[15] Orzolek M.D; Murphy. J and J Ciardi (2003) The effect of colored polyethylene mulch on the yield of squash, tomato and cauliflower. Penn State Center for Plasticulture. 31 January 2006. http://plasticulture.cas.psu.edu/cmulch- 93.htm.
[16] Torres-Olivar V, Ibarra-Jiménez L, Cárdenas-Flores A, Hugo Lira-Saldivar R, Humberto Valenzuela-Soto J, Castillo-Campohermoso MA (2018). Changes induced by plastic film mulches on soil temperature and their relevance in growth and fruit yield of pickling cucumber. Acta Agriculturae Scandinavica, Section B-Soil & Plant Science 68(2): 97-103.
[17] Wehner, T.C. and N. Guner, (2004). Growth stage, flowering pattern, yield and harvest date prediction of four types of cucumber tested at 10planting dates. Proc. xxvi IHC. Advances in Vegetable Breeding (Eds) J.D.