Effect of Different Mulching Materials on Growth and Yield of Cucumber

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ABSTRACT

A field experiment to study "Effect of different Mulching Materials on Growth and Yield of Cucumber at Gokuleshwor Baitadi was conducted at Gokuleshwor agriculture and animal science college. The variety used in this experiment was "Bhaktapur local ". The experiment was laid out in a randomized complete design (RCBD) with 5 treatments and 4 replications. Data were collected from sample plants of each plot without replacement .in this experiment applied treatment were no mulch (control), wheat husk, black polythene mulch, silver polythene mulch, rice straw mulch. Results revealed the application of mulching significantly affects the various parameter that plant height, leaf number, leaf area, number of flower and fruit, weight and yield. The result obtain were maximum plant height (1102cm) and maximum leaf number (412.5 numbers) in black polythene(T3) at 75 DAT, maximum leaf area (2318 cm2) in rice straw(T5), maximum flower (80), maximum fruit(65gm), maximum weight (33.52 kg/plot) and maximum yield(16.76 ton/ha) in rice straw(T5). From this experiment, we conclude that vegetative growth was seen best in black polythene mulching (T3) and reproductive growth as well yield was found best in rice straw (T5) at Gokuleshwor, Baitadi condition. Cucumber, Cucumis sativus, Mulching, Growth, Yield

1. Introduction

Cucumber (Cucumis sativus) is a popular vegetable crop grown worldwide. Cucumber is a part of the Cucurbitaceae family, which also contains pumpkin, watermelon, and melons. It is one of the world's oldest veggies. It has been cultivated as a food source for over 3000 years. It was grown in Italy's gardens in the 8th and 9th centuries (Walters, 1989). Cucumber is among the most common fruits and vegetables in Europe and Asia. Cucumber is one of the top ten vegetables grown worldwide. The leaves are alternate, simple, and triangular ovate, and it is also known as annual crops and climber plant. The leaf blades have 3-7 lobed edges and are extensively cordate at the base. Cucumber fruits comprise 95 percent water, 4% carbohydrate, and 1% protein. Phytonutrients and vitamin K are abundant in cucumbers. Vitamin B1, vitamin C, phosphorus, potassium, manganese, and copper are also present. Cucumber consumption has various health benefits, including weight loss, balanced hydration, digestive regularity, detoxification, improve brain function, cancer prevention, renal health, constipation relief, natural cure for intestinal worms, and control of diabetes (Panhwar et al., 2018).

Weed control, soil moisture conservation, and temperature modification are the major goals of mulching (Karki et al., 2020b). Mulching improves the microclimate, which has a significant impact on plant growth parameters such as plant height, number of leaves, and branches per plant (Ashrafuzzaman et al., 2011). Mulching prevent the growth of weed species, allowing for improved uptake of nutrients from the soil while also reducing plant competition (Parmar et al., 2013). Mulching enhances floral production by 3-4 times and increases the amount of blooms and fruits per plant (Karki et al., 2020b). In cucumber, black plastic mulching produced the most leaves, while no mulching produced the least leaves (Akter et al., 2020). Black plastic mulching produced the most leaves, followed by transparent film, silver film, and wheat straw, while no mulching produced the least leaves (Hallidri, 2001). Plants produced in various mulching conditions create larger yields than those planted in the absence of mulch; across all ground cover, black polythene mulch produces early yield and yield per plant is also higher (Soleymani et al., 2015)

Several limits have been placed on this sector, including inputs, package of practices, technological development and transfer, financing availability, and marketing. Cucumber fruit vegetables are in high demand these days, but domestic cucumber output is not increasing. Cucurbit downy mildew, produced by an obligate biotroph *(Pseudoperonospora cubensis*), is one of the most serious problems in cucumber production (Berg et al., 2020). Farmers in the village's hilly terrain have been experiencing disease and pest management problems, and their motivation in cucumber production is diminishing. Powdery mildew, gummy stem rot, anthracnose, Alternaria leaf blotch, and fusarium wilt are some of the diseases that might affect your plants. White powdery development on the upper surface of the leaves and on the stem of diseased cucumber plants is caused by powdery mildew. The cucumber plant's fruit is affected by gummy stem blight, which develops black rot.

The research's findings will be extremely useful in enhancing cucumber yields not just in the study area but also in other cucumber-growing locations. Plants grown in different mulch conditions create better ultimate yields than plants cultivated without mulch (Soleymani et al., 2015). Among the mulches, black polythene mulch delivers earlier yield and yield per plant was also greater. Mulch soil has a stronger nutritional hold than soil that hasn't been mulched, hence it supports bigger yields. (Oliveira et al., 2021)

We conducted this research to see how different mulching materials affect cucumber var. Bhaktapur local growth and yield in the Gokuleshwor area.

1.1 Cucumber's botanical description and origin

Cucumber (Cucumis sativus) is a Cucurbitaceae family member. Cucumber was first brought to the United States by Christopher Columbus (Weng, 2020). Watermelon, muskmelon, pumpkin, and squash are also prominent members of this family. Cucumber is one of the oldest vegetables known to man, and it is native to India. It was first cultivated as a food source around 3000 years ago. It was grown in Italian gardens in the 8th and 9th centuries (Walters, 1989). Though cucumber is a significant Asian fruit vegetable, it is also grown in many other countries, including Iran, Russia, Turkey, and the United States. (SALEH & ABOU-SHLEEL, 2012).The genus Cucumis has Thirty species in Africa and Asia (Sebastian et al., 2010). The most significant species include: (Cucumis sativus, C. humifructus, C. melo, C. anguria,C. myriocarpus,C. picrocarpus,C. variabili, C. argenteus, C. ficifolius,C. metuliferus).Cucumber is a nutrient-dense vegetable that is low in calories and high in vitamins and potassium (Khanal et al., 2020; Pal, 2020). Cucumis sativus, or cucumber, is one of the most extensively consumed fruits and vegetables on the planet.

Cucumber is a climber that requires supporting frames and is wrapped around the frame throughout its growing cycle. The leaf canopy is larger because it is a climbing nature plant. The leaves are alternately arranged on the vines, with a profusion of hairy-like texture on both the upper and lower surfaces of the leaves. Flowers come in two types: male and female flowers, both of which are yellow in hue. The emergence of a tiny fruit-like swelling structure at the bottom of the female bloom is a basic difference between the male and female flowers. When fully developed, these fruits have a cylindrical shape with a length of 60 centimeters and a width of 10 centimeters. The color of the fruit matures from green to yellow as it age (Gao et al., 2021; Usha et al., 2015)

1.2 Nomenclature and Taxonomy

Kingdom: Plantae

Division: Magnoliophyta

Class: Magnoliopsida

Order: Cucurbitales

Family: Cucurbitaceae

Genus: *Cucumis*

Species: *sativus*

Its production performance is heavily reliant on good mulching. Mulching is invariably the cucumber crop's limiting factor. It boosts the number of flowers and fruit yields by improving plants growth. Botanically, it is classified as a berry and comes in a variety of shapes, sizes, and colors.

Widely regarded as the greatest fruit vegetables, it thrives in moist, well-drained soil with a high organic matter content and a mild alkalinity, as well as full sun (Gough, 2020)

1.3 Mulching Effect on Plant Height

Mulching is the practice of covering the ground's exposed surface with a layer of external materials such as poly-ethane, straw, husk, plant leaves, and so on. Mulching has a significant impact on the increase of crop/fruit production and improving quality (Dubey et al., 2020). Plastic mulching improves soil quality through improving the physiochemical qualities of the soil, as well as influencing microbial activity. Mulching aids in the control of weed development and also the uptake of moisture and solar radiation by the plant. The maximum cucumber height was obtained at 60 DAT in silver on black mulching, while the lowest height was observed in control. (Karki et al., 2020b).

At 60 days after transplanting, (Bhandari & Bhandari, 2021) found that black mulching yielded the highest height while control or no mulch yielded the lowest height in cucumber. Cucumber planted in black mulching grows the tallest, while cucumber cultivated in control grows the shortest among the mulches tested (Soleymani et al., 2015). Summer squash cultivated with silver plastic mulching had the highest height, following the black plastic, and no mulch has the lowest height (Radhika Regmi et al., 2021) Cucumber mulched in black plastic grows the tallest, while cucumbers with no mulch grow the shortest (Hallidri, 2001).

1.4 Mulching Effect on number of leaves and leaf area.

Black plastic mulching produced the most leaf, whilst no mulching produced the least leaf. In cucumber, the rice husk mulching treatment produced the most leaves, whereas the no mulching treatment produced the least (Akter et al., 2020; Ekwu et al., 2017). The quantity of leaves was found to be higher on black plastic and transparent plastic in watermelon (Nwokwu et al., 2014), whilst no mulching recorded the lowest numbers. In cucumbers, black plastic has the most leaves, followed by clear film, silver film, and wheat straw, while control has the fewest leaves (Hallidri, 2001). The highest number of leaves were detected on black plastic mulching at 30 DAT, whereas the lowest number of leaves were observed on no mulch (Bhandari & Bhandari, 2021). The highest number of leaves were found in black plastic, whereas the lowest number of leaves were detected in the control condition (Bharati et al., 2020). At 45 days after transplanting, black polythene produced the most squash leaves, while control mulching produced the fewest (Sweety, 2018). At 60 days after transplanting, the silver on black polythene mulch treatment had the most leaves, while the control treatment had the fewest. (Karki et al., 2020b). At 45 DAT, the black polythene treatment produced the longest leaves, whereas the control treatment produced the shortest leaves (Sweety, 2018).

1.5 Mulching Effect on the number of branches.

Mulching improves the microclimate, which has a significant impact on plant growth parameters such as plant height, number of leaves, and branches per plant (Uz-Zaman et al., 2018). Plants

cultivated in black mulch have superior growth of foliage, stems, height, and total area over plants grown in other mulching materials (Soleymani et al., 2015). Maximum branches were achieved in black plastic mulching, whereas minimum branches were recorded in no mulching methods, according to (Akter et al., 2020).

1.6 Mulching Effect on number of flowers and fruits.

Mulching enhances flower production by 3-4 times and increases the amount of blooms and fruits per plant (Karki et al., 2020b). Black and silver mulch generates more male flowers in the early days of transplanting than control, which produces more female flowers, but in later stages of growth, black and silver mulch produces more female flowers while control produces the most male flowers (Karki et al., 2020a)

1.7 Mulching Effect on yield

Plants grown under various mulching conditions provide better ultimate yields than plants grown without mulch; across all mulches, black polythene mulch produces the highest early yield and yield per plant (Soleymani et al., 2015). Mulch soil has a stronger nutritional hold than soil that hasn't been mulched, hence it supports bigger yields (Oliveira et al., 2021). When a plant is planted on black mulch, it produces a better yield per m2 than if it is grown without it (Bharati et al., 2020). Mulching treatment resulted in a considerable increase in average fruit weight (kg) when compared to no mulch (Parmar et al., 2013). Mulching inhibits the growth of weeds, allowing for improved nutrient uptake from the soil. It also reduces plant competition, resulting in a higher yield (Parmar et al., 2013). Plants cultivated with mulch have the maximum yield / plant when compared to plants planted without mulch (Hudu et al., 2002). In comparison to plants cultivated without mulch, plants planted on silver polythene mulch provide the maximum yield. (Arancibia & Motsenbocker, 2008)

2. Materials and methods

This research entitled “Effect of different mulching material on growth and yield of cucumber (*Cucumis sativus* **L**.) was conducted at the Horticulture field of Gokuleshwor Agriculture and Animal Science College, during the period of March 2021.

2.1 Geographical situation

The research was carried out at the Horticulture research farm of GASSC, Gokuleshwor Baitadi in the year 2021. The morphometry of this area is latitude 29°68' 80" N and longitude 80° 54' 94" E, the elevation is 800 masl.

Figure 1. Map of Study Area, Gokuleshwor, Baitadi

2.1.1 Agro climatic condition

Experiment was conducted in warm subtropical climate condition. The average temperature of summer was 31 Degree Celsius. Here the Annual average receiving precipitation was about 96.39 mm

2.1.2 Physio-chemical characteristics of experimental Soil

The soil texture of experimental field was sandy loam with the PH 5.5.

Sampling technique

Probability sampling technique was used in data collection. Simple random sampling without replacement (SRSWOR) was used. Five (5) plants were selected randomly as sample plant from each plot leaving the border plant.

2.2 Agronomic practices

2.2.1 Nursery raising

The seeding of Cucumber was raised in polythene bag. The mixture of coco peat, sand, field soil dry FYM and organic manure was used as growing substrate. The seeding was sown in Chaitra 7 2077.All the polythene bags were filled with mixture of growth medium and in each polythene bag two seeds were seeded. Enough moisture was provided for the germination of seed. Regular monitoring was done. Proper care was given to protect the seedling from hard weather and climatic condition. In 3rd days seed were germinated. External fertilizer was not applied and timely irrigation was done to maintain optimum moisture in the soil. After 9 days almost all seed were germinated. After 20 days four leaf stages were seen. And the seedling was robust.

2.2.2 Hardening of seedlings

Hardening is very effective in increasing seedling strength, tolerance. Seedlings were placed in full sunlight before transplanting. Irrigation was reduced during 4 days before transplanting.

2.2.3 Field Preparation

The field was lightly irrigated before tillage due to harness of soil. Tractor was used for primary tillage. Secondary tillage was done manually by using spade, hoe and rake. Leveling was done by breaking all clods. Ten (10) kg FYM was mixed at each plot during field preparation. All weeds, pebbles and stones were removed during the field preparation. Every plot was raised to prevent from water flooding condition.

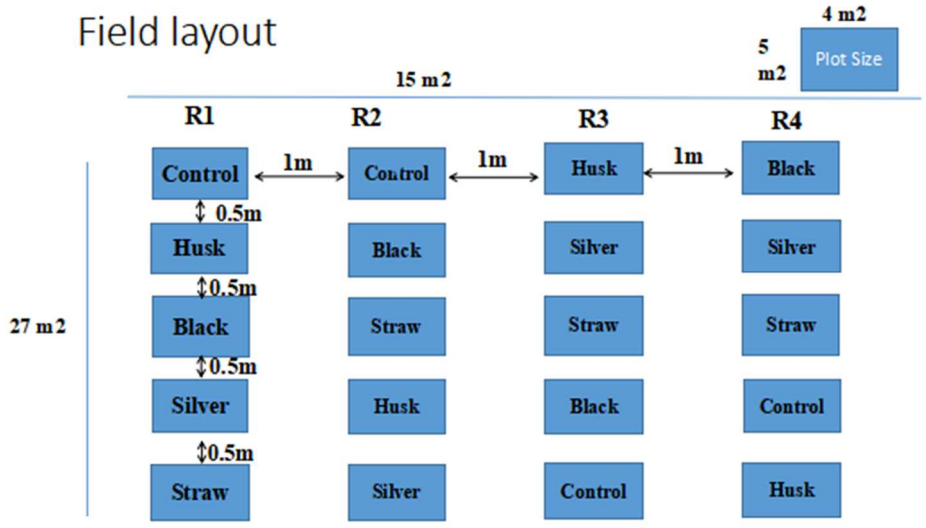

Figure 2. Research Design

2.2.4 Layout

After leveling, layout was done. The research field was divided in 4 replications and each replication having 5 plots. Gap between plots was maintained 0.5 m and gap between replication 1m for easy access to management practices. Each plot has a size of 5×4 m^2 size. Total area of field research was 400.5 m^2 the plots were divided into equal parts by measuring tape. Total number of the plots was 20. Layout was done by plastic rope.

2.2.5 Research Details

Table 1. Details of research

Particulars	Details
Name of crop	Cucumber (*Cucumis sativus*)
Name of variety	Bhaktapur Local
Experimental design	Randomized complete block design (RCBD)
Number of treatments	5
Number of replications	4
Number of plots	20
Plot size	5*4 m2
Net area of experiment	405m2
Plant population	400
Planting distance(spacing)	1*0.5m
Distance between Replication	0.5m
Distance between treatment	1m
No of plants per plot	20
No of plants selected for study per plot	5
Date of sowing (Nursery)	3/22/2021
Date of transplanting	4/17/2021

Table 2. Treatment details

Treatments	Details
T1	No mulch (Control)
T2	Wheat Husk
T3	Black Polythene Mulch
T4	Silver Polythene Mulch
T5	Rice Straw

2.2.6 Fertilizer Application

Recommended dose of fertilizer= 7:2:5 NPK per Ropani. So, fertilizer dose with the size of plots was used. The recommended dose of FYM= 1500 kg/Ropani.

Table 3. Fertilizer Application

Particulars	Details
Nitrogen	0.279 kg/plot
phosphorous	0.079 kg/plot
Potassium	0.199 kg/plot
FYM	59.79 KG/plot

2.2.7 Transplanting

The seedling was ready for transplanting after emergence of two true leaves.

Before transplanting the plots were applied with fertilizer and ridge and bunds were made. After hardening the seedlings, they were transplanted in ridge. Transplanting was done on 17th of April 2021 at spacing of 1m × 0.5 m. Transplanting was done by making hole in ridge and placing root in the hole then pressing with thumb. All together of 400 healthy seedlings were transplanted in 20 plots.

2.2.8 Gap filling

After transplanting of seedlings regular supervision was done. Some of the plants were damaged in the plots. Replacement of damaged seedlings with healthier one was done by previously germinated seedlings. For maintaining uniform crops in the plot replacement was done with new seedlings.

2.2.9 Weeding

Weddings were done to check the competition of weeds with cucumber plant. Wedding was done four times manually with the help of hoe. First wedding was practiced after 15 days of transplanting. Second weeding was done after 30 days of transplanting. Third weeding was done after 45 days of transplanting. Fourth weeding was done after 60 days of transplanting.

2.2.10 Irrigation

After transplanting initially light irrigation was done because of less moisture in soil during summer season. For few days light irrigation was done every day until the seedling were established in the field. Cucumber being water sensitive it requires frequent irrigation during summer. After full establishment of seedlings in the field irrigation was applied on the 7 days interval.

2.2.11 Harvesting

Four successive harvesting were done at 30, 45,60, and 75 DAT and yield performance was recorded.

2.2.12 Data collection

Data collection was started after 15 days transplanting and continued up to final harvesting 75 days of transplanting. The total crop period from germination to final harvesting was of 100 days. Data collection was done on the basis of different parameters taken in the study. Data was collected for determining growth and yield of cucumber. Data was collected after randomly tagging 5 plants from each plot and 100 plants were taken as sample plant to collect data. Different parameters taken in research are:

2.2.13 Plant height (cm):

The height of 5 sample plants was measured in cm scale from the soil surface up to the terminal portion of plant with the help of measuring tape. The height was measured with the respective time of 15,30,45,60, and 75 DAT and average was calculated for each plant.

2.2.14 Number of leaves:

Numbers of leaves were counted from the five sample plants on 15,30,45,60 and 75 DAT and the average was calculated for each plant.

2.2.15 Leaf area: (cm^2)

Leaf area from five sample plants on 15,30,45,60 and 75 DAT were taken and average was calculated from each plant.

2.2.16 Number of flowers:

Number of flowers were counted from the five-sample plants on 15,30,45,60 and 75 DAT and average flowers number were calculated for each plant.

2.2.17 Yield per plot (kg):

Yield was taken from selected five plant and calculated average yield per plant. Similarly yield per plot was also calculated by weighting fruits from all plants of each plot.

2.2.18 Statistical analysis

Experiment data were analyzed using GENSTAT Software of 15th edition and treatment means separated Duncan's Multiple Range Test (DMRT) at 5% level of significance. Analysis of variance (ANOVA) was used to test difference among the factors (Gomez & Gomez,1984).

3. Results and Discussion

The experiment entitled " Effect of different Mulching on vegetative growth and yield of Cucumber var. Bhaktapur local conducted on March 22, 2021, the experimental findings computed on the basis of the observation recorded and the statistical analysis are presented and discussed below:

3.1 Plant height

Plant height at 15, 30,45,60,75 DAT were positively influenced by the effect of mulching. Black mulching shows the greatest height (1052cm) at 60 days after transplanting which is also seen in the result of Bhandari, S., Bhandari, A., (2021) On 75 days after transplanting T_3 (Black Polythene Mulching) shows maximum plant height (1102 cm) whereas lowest plant height seen in T_1 (Control) 977 cm. Mulching provides sufficient soil moisture near the root zone, minimizes evaporation loss as a result higher nutrients will be available in the soil which favors the maximum plant growth (Parmar et al.,2013) which is in accordance with our findings.

Table 4. Effect of different Mulching Materials in Plant Height (cm)

Treatment	15 DAT	30 DAT	45 DAT	60 DAT	75 DAT
Control	86.75	498.2	849.5	940	977
Wheat Husk	97.88	491.5	907.5	944.5	991
Black Polythene	107.25	484	1021	1052	1102
Silver Polythene	99.62	502.5	971	997.8	1041
Rice Straw	107.12	512	896.5	989.2	1045
SEm(±)	9.9	29.6	38.9	54.8	44.5
LSD(0.05%)	30.5	91.3	119.8	119.4	137

CV(%)	19.9	11.9	8.2	7.9	8.6
F-value	NS	NS	NS	NS	NS
GRAND MEAN	99.7	498	949	985	1031

Level of Significance ***0.001, **0.01, *0.5

Mean with same letter within column do not differ significantly at p= 0.05, SEM=Standard error of mean, LSD= Least significance difference, CV= Coefficient of variation, *=Significant at 5% & **= Significant at 1% level of significance, NS= Non-Significant

3.2 Leaf numbers

Number of leaves at 15, 30,45,60,75 DAT were positively influenced by the effect of mulching. Black mulching shows the maximum number of leaves (613.5) at 60 DAT which is also seen in the result of (Bharati et al., 2020). On 75 days after transplanting T_3 (Black Polythene Mulching) shows maximum leaves numbers (512.5) whereas lowest was seen in T_1 (Control) 402 leaves. Mulching holds the moisture as well as enhances the nutrient availability by the plant which leads to overall growth and development of plant including number of leaves (Sweety et al., 2018)

Table 5. Effect of different Mulching Materials in No of leaves.

Treatment	15 DAT	30 DAT	45 DAT	60 DAT	75 DAT
Control	25.5	135.2^{b}	406.7^{b}	453.5^{b}	402
Wheat Husk	25.25	176a	596.0^{a}	611.8^{a}	457.2
Black Polythene	26.25	168.2^{ab}	555.8^{a}	613.5^{a}	512.5
Silver Polythene	27.25	163.8^{ab}	525^{ab}	554.5^{ab}	432.5
Rice Straw	27	176.5^{a}	544.2^{a}	576.5^{ab}	441.8
SEM (±)	2.105	10.42	38.4	40.3	4
LSD(0.05%)	6.486	32.11	118.3	124.1	132.3
CV(%)	16	12.7	14.6	14.3	19.1
F-value	NS	NS	*	NS	NS
GRAND MEAN	26.25	163.9	526	562	449

Level of Significance ***0.001, **0.01, *0.5

Mean with same letter within column do not differ significantly at p= 0.05, SEM=Standard error of mean, LSD= Least significance difference, CV= Coefficient of variation, *=Significant at 5% & **= Significant at 1% level of significance, NS= Non-Significance

3.3 Leaf area

Mulching shows the maximum leaf area than no mulch (control) which is also seen in the result of (Bharati et al., 2020). On 75 days after transplanting T_5 (Rice Straw Mulching) shows maximum leaves area (2318 cm^2) whereas lowest was seen in T_1 (Control) 1911 cm^2. Mulching improves the microclimatic condition of soil which provides the suitable environment for uptake of nutrients and water, which ultimately increases the cell division and cell elongation as a result leaf canopy increase.

Table 6. Effect of different Mulching Materials in leaf area (cm^2).

Treatment	15 DAT	30DAT	45 DAT	60DAT	75DAT
Control	469.6	1457	2058	2155	1911
Wheat Husk	465.6	1414	2068	2300	2016
Black Polythene	545	1580	2236	2343	2011
Silver Polythene	517.1	1458	2283	2398	2166
Rice Straw	549.4	1515	2318	2432	2318
SEM (±)	55.2	97.2	140.4	122.8	179.6
LSD(0.05%)	170	299.4	432.5	378.3	533.4
CV(%)	21.6	13.1	12.8	10.6	17.2
F-value	NS	NS	NS	NS	NS
GRAND MEAN	509.34	1485	2193	2325	2084

Level of Significance ***0.001, **0.01, *0.5

Mean with same letter within column do not differ significantly at p= 0.05, SEM=Standard error of mean, LSD= Least significance difference, CV= Coefficient of variation, *=Significant at 5% & **= Significant at 1% level of significance, NS= Non-Significant.

3.4 Number of flowers, fruits, weight (kg) and yield (ton)

Rice Straw mulching T_5 shows the greatest fruit, flower, weight and yield (65.00^a), (80.00^a), (33.52^a) and (16.76^a) respectively than no mulch (control) (43.50^c, 60.50^d ,17.93^c, 8.97^c respectively in fruits, flowers, weight & yield) which is also seen in the result of Kishore, P., Daniel, S. (2018). Mulching improves the microclimatic condition of soil, provides the suitable environment for uptake of nutrients and water which increases superior branches characteristics, number of flowers, fruits, fruit size and total yield in plant.

Table 7. Effect of Mulching Materials in No. of flowers, fruits, weight & yield.

Treatment	Flower	Fruit	Weight	Yield
Control	60.50^d	43.50^c	17.93^c	8.97^c
Wheat Husk	66.50^c	49.00^{bc}	25.86^b	12.93^b
Black Polythene	70.75^{bc}	53.25^b	26.97^b	13.49^b
Silver Polythene	74.00^b	54.75^b	28.11^b	14.05^b
Rice Straw	80.00^a	65.00^a	33.52^a	16.76^a
SEm(±)	1.726	2.133	1.522	0.761
LSD(0.05%)	5.318	6.571	4.69	2.345
CV(%)	4.9	8	11.5	11.5

F-value	***	***	***	***
GRAND MEAN	70.35	53.1	26.48	13.24

Level of Significance ***0.001, **0.01, *0.5

Mean with same letter within column do not differ significantly at p= 0.05, SEM=Standard error of mean, LSD= Least significance difference, CV= Coefficient of variation, *=Significant at 5% & **= Significant at 1% level of significance, NS= Non-Significant

4. Conclusion

The present research entitled "Effect of different Mulching on growth and yield of Cucumber (*Cucumis sativus* L.) var. Bhaktapur Local at Gokuleshwor, Baitadi" was conducted during March 2021 at the department of horticulture, Gokuleshwor Agriculture and Animal science college, Gokuleshwor Baitadi. The experiment was laid out in a Randomized complete block design with 4 replications and 5 treatments. The observation on growth and yield were recorded and results were found optimum at 60 and 75 DAT.

From this research it can be concluded that the mulching plays an important role on vegetative growth, reproductive growth and yield of cucumber. The application of T_3 (Black Polythene Mulching at 60 Days after transplanting) was observed to be the best with respect to most of the parameters examined under this research i.e., plant height, number of leaves, leaf area, number of flowers, fruits and yield per plot.

For plant height and number of leaves at T_3 (Black Polythene Mulching) was found best (1102cm) at 75 DAT whereas lowest height was observed in Control (977cm) in the same period of 75 days. Leaf area was observed highest in T_5 (Rice straw mulching) which was (2318 cm^2) and lowest leaf area was seen in T2(Wheat Husk) which was (1911 cm^2) Number of flowers, fruits and yield per plot were seen highest in T_5 (rice straw mulching) at 75 DAT (80.00^a), (65.00^a) and (16.76^a) respectively whereas lowest was seen in Control (60.50^d), (43.50^c) and (8.97^c) respectively.

So, it can be concluded that Mulching might be best economic option for obtaining high growth and yield of Cucumber. Similarly, growth and yield of cucumber was found to be significantly different between different mulching and no mulching (control) treatments. Among the different mulching's, Rice Straw Mulching (T_5) could be best for cucumber production in Gokuleshwor area.

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