

INFLUENCE OF 8 PLASTIC MULCHES ON 'GREENSLEEVES' SLICING CUCUMBER UNDER SOUTHWEST MICHIGAN CONDITIONS

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OBJECTIVE:

To evaluate influence of eight plastic-mulch films on cucumber fruit yield and quality.

SUMMARY:

Clear plastic was definitely inferior to seven other colors in contributing to total yield and yield of No. 1 fruit. Blue had the highest total yield and yield of No. 1 fruit (904 bu/a and 564 bu/a, respectively), but its effect on yield was significantly different only from clear.

METHODS:

Fertilizer: Prior to planting, 0-0-60, 33-0-0, and Solubor were broadcast and incorporated at 200, 150, and 10 pounds/acre, respectively. After planting 4-0-8-2(Ca) was applied through the drip irrigation at 1 pound nitrogen/acre/day. Application of 4-0-8-2 began on 30 June and continued through 18 August, 2003.

Herbicide: Prior to planting, Curbit 3E at 2 pints/acre was applied between the plastic.

Planting: Direct seeding was done on 17 June into raised, plastic mulched beds, 6" high and 24" wide. Beds were spaced on 5.5' centers and in row spacing of the 2-plant hills was 24" (7920 plants/acre). Each plot consisted of a 30 foot length of the appropriate colored plastic, 16 plants for harvest were placed in the middle 15 feet, and bordered by guard plants between plots. The trial was laid out and analyzed as a completely randomized design with four replications.

Treatments: Treatments consisted of a blue, olive, green, clear, gray (white on black) and three black entries (black-6, black-7, black-8),

Harvest and data collection: Harvest was conducted five times; 7 August through 21 August. Fruit was graded at each harvest into No. 1, No. 2 and culls.

RESULTS:

Clear plastic had significantly lower yields than other treatments (Table 1). Total yield on clear was 595 bushels/a (bu/a). Clear plastic was the only treatment significantly lower for total yield and yield of No. 1 fruit. Blue plastic gave highest total yield at 904 bu/a. Blue also had highest yield of No.1 fruit. Low yield for clear plastic can be directly attributed to the large amount of weed growth under the plastic. In some plots, weed growth was great enough to push the plastic over the cucumber plants.

Clear plastic also contributed to later harvest. None of the clear treatment plots were harvested at first harvest on 7 August. First harvest on clear plots occurred on 11 August. For plastic to have an effect on raising soil temperatures leading to earlier yield, it has to have good soil contact. Weed growth did not allow for good contact. Other treatments had weed growth (gray and blue) but it was not as great as under clear. All three black treatments, and the green and olive gave adequate weed control.

Blue plastic has shown to have positive effects in other tests with cucurbit crops. Even though blue was the leader in total yield and yield of No. 1 fruit in this trial, it was significantly different only from clear plastic for these traits.

Table 1. Yield of ‘Greensleeves’ cucumber grown on eight plastic mulch treatments at the Southwest Michigan Research and Extension Center. Plants were grown on raised, plastic mulched, drip irrigated beds. Beds were 5.5 feet apart, hills were 24 inches apart with two plants/hill (7920 plants/acre). Yields are reported in 1-1/9 bushels.

Treatment	Total Yield	Yield No.1	%Total	Yield No.2	%Total	Yield Cull	%Total
Blue	904	564	63	147	16	193	21
Black-6	895	563	63	164	18	168	19
Black-7	867	557	65	156	17	154	18
Green	820	518	64	150	18	152	18
Olive	793	467	58	156	20	170	22
Black-8	763	464	61	160	21	138	18
Gray	755	520	69	134	17	101	12
Clear	595	346	57	182	31	67	12
lsd _{0.05} =	180	126	10	ns	9	86	10