

**The Effect of Different Mulches
on Everbearing Strawberry Production**

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INTRODUCTION

Everbearing strawberries have been produced commercially and by home gardeners in the interior since the late 1970's using clear plastic mulch and row covers to promote early fruiting (Dinkel 1980). The major drawback of this technique is that it requires the use of an herbicide or labor intensive and inefficient hand weeding. Black or opaque mulches have been tried as a means of weed control with limited success. Black plastic mulch is not as effective as clear mulch for soil warming when used without row covers. However, there was some evidence that the yields of strawberries grown under row covers with black and clear mulch might be comparable (Farris and Conn 1987). Several other mulches which have recently come on the market were also tested. Spray-on black mulch should increase soil temperature better than black plastic mulch because of better contact with soil particles. Two sided mulch, white on one side and black on the other, used with the white side up has increased yields by reflecting light up to the underside of leaves. When this mulch is used with the black side up it might improve soil temperatures by reflecting more heat back to the soil. Dupont landscape fabric (permeable mulch), widely used for weed control, was also tested. The object of this study was to determine the effect of these mulches on strawberry yields, soil temperatures, and air temperatures above the mulch. Temperature data has not been analyzed yet.

RESULTS

In 1987 strawberry yields using clear plastic mulch with or without row covers were significantly greater than all other mulch treatments, while in 1988 yields using clear mulch were significantly greater than all treatments except for black plastic with row covers (Table 1). In both 1987 and 1988 strawberries grown through black plastic without row covers were among the lowest yielding treatments (Table 1). When the data for both years were combined yields of strawberries grown through clear plastic mulches with or without row covers were significantly greater than all other mulch treatments (Table 2).

Table 1. Strawberry Yields (lbs./100ft. row)¹.

1987 Treatment ²	Yield	1988 Treatment	Yield
Clear	189a ³	Clear w/o cover	270a
Clear w/o cover	171a	Clear	258a
Black	129b	Black	235ab
Black/White	122b	White/Black	191bc
Spray Black	121b	Bare Soil	182c
White/Black	107b	Spray Black	182c
Permeable	103b	Black w/o cover	177c
Bare w/o cover	53c	Black/White	176c
Black w/o cover	52c	Permeable	176c

Table 2. Combined Strawberry Yields, 1987 & 1988
(lb/100ft row)¹.

Treatment ²	Yield
Clear	234a ³
Clear w/o cover	221a
Black	182b
Spray Black	151bc
Black/White	149bcd
White/Black	149bcd
Permeable	139cd
Black w/o cover	114d

- 1 Quinault strawberries grown in 3' wide rows at 1 plant/ft²
- 2 All mulches were used with clear plastic row covers unless otherwise noted.
- 3 Values followed by different letters are significantly different (Waller-Duncan K-ratio t test) at the 5% level.

There was also a highly significant difference between yields for all treatments in 1987 (121 lb/100ft. row) and 1988 (241 lb/100ft. row). The summer of 1988 was warmer than average and this may account for the improved performance of the black plastic mulch relative to the clear plastic mulch in 1988. In 1988, production of clear mulch with row covers appeared to decline relative to other treatments late in the season, while in 1987 production continued to increase until the end of the season (Figures 1 and 2). This

decline was apparent in the field as a noticeable decline in flower production and it may have been caused by insect, disease or nutritional problems which were exacerbated by the dense foliage of plants grown through clear plastic mulch.

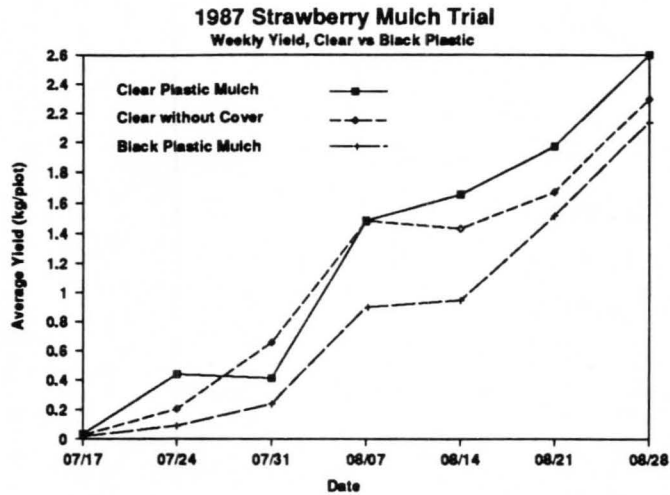


Figure 1.

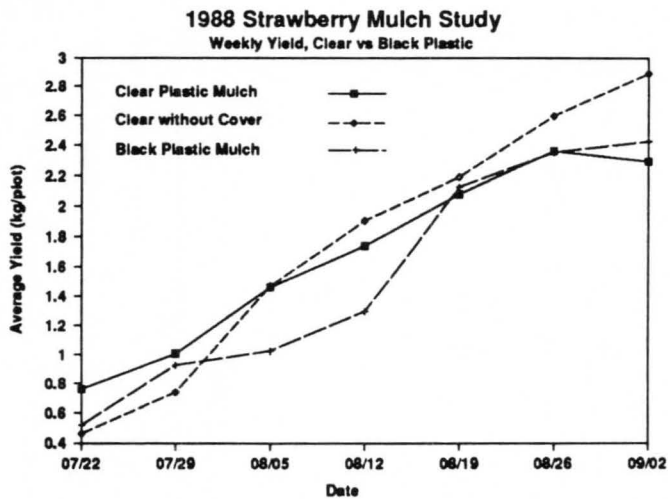


Figure 2.

SUMMARY

On the basis of the past two year's results we still recommend using clear plastic mulch with row covers for growing everbearing strawberries if maximizing yield is important. Although the combined two year yield of plots with clear mulch and row covers was not significantly greater than that of clear mulch without row covers the past two springs have been warm ones and it is our opinion that row covers would be beneficial during a cooler spring. If you are growing strawberries on a small scale and wish to avoid herbicides or extensive hand weeding, you may wish to use black mulch with a row cover and accept some reduction in yield. However, you will still have to pull the weeds which germinate in and around the planting hole and you may have a considerable reduction in yield during a cool growing season. We would not recommend using black spray-on mulch, black/white mulch with either side up, permeable mulch (landscape fabric), or black plastic mulch without row covers.

REFERENCES

- Dinkel, D.H., P.J. Wagner, and G.E.M. Matheke. 1980. Growing everbearing strawberries as annuals in Alaska. Agric. Exp. Stn. Circ. 35., University of Alaska-Fairbanks.
- Farris, M., and J.S. Conn. 1987. Weed control in annual strawberries grown with plastic mulch: efficacy, phytotoxicity and soil persistence studies. Agric. For. Exp. Stn. Bull. 75., University of Alaska-Fairbanks.