

## Beneficial effects of mulching in soybean cultivation

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Soybean is a highly nutritive crop which contains 40 % protein, 20 % oils, 6-7 % minerals, 5-6 % crude fibres and 17-19 % carbohydrates. It also contains high amounts of iron and vitamin B-complex. Soybean has multi-uses as it provides food and various industrial products. In the present situation, the role of diversification can not be ignored when the underground water Table of Punjab is receding at an alarming rate of 0.74 m per annum. The cultivation of soybean can play an important role in replacing the area under paddy crop. However, its successful cultivation can be assured only by following scientific methods/ techniques as that have been recommended by the agricultural scientists. The soil mulching technique needs to be adopted to overcome the problem of poor germination of soybean seeds. This technique helps to conserve optimum soil moisture for proper germination of the seeds. Wheat/ paddy straw or plant residue of any other crop can be used for carrying out soil mulching. Mulching is highly beneficial for soybean crop as it helps in reducing the water requirement of the crop, restricting weed population, enhancing soil fertility status, conserving ecological environment, etc. Besides these, the major advantage of mulching is to enhance the germination power of the seeds. It has been observed by the soybean growers that the

prevailing high temperature at sowing reduces the germination capacity of the seeds. But this problem can be tackled effectively by adopting mulching technique. An ideal temperature ranging between 18-35°C is required for better germination and optimum plant stand. Any increase or decrease above or below this range affects the germination badly and results in patchy stand of the crop. The research trials (Fig. 1) conducted on soybean mulching have revealed that by following this technique the soil temperature is lowered down by 4-6°C during the day time and goes up by 1-2°C during night which proves to be very helpful in proper germination of the soybean seeds. The reduced difference between day and night temperatures enhances the germination capacity of the seeds. An another problem faced by the soybean growers is the formation of crust layer due to pre-monsoon showers at the time of sowing of soybean but the adoption of mulching technique minimizes this problem also to a great extent by maintaining proper soil moisture for higher number of days. With the result, the seeds come out of the soil without facing any difficulty. Moreover, because of improvement in retention capacity of the soil, the crop requires less irrigations as compared to the crop sown by traditional method.

The soil mulching also helps in good crop growth and proper development of roots which

### Key words :

Soybean,  
Mulching,  
Beneficial effect

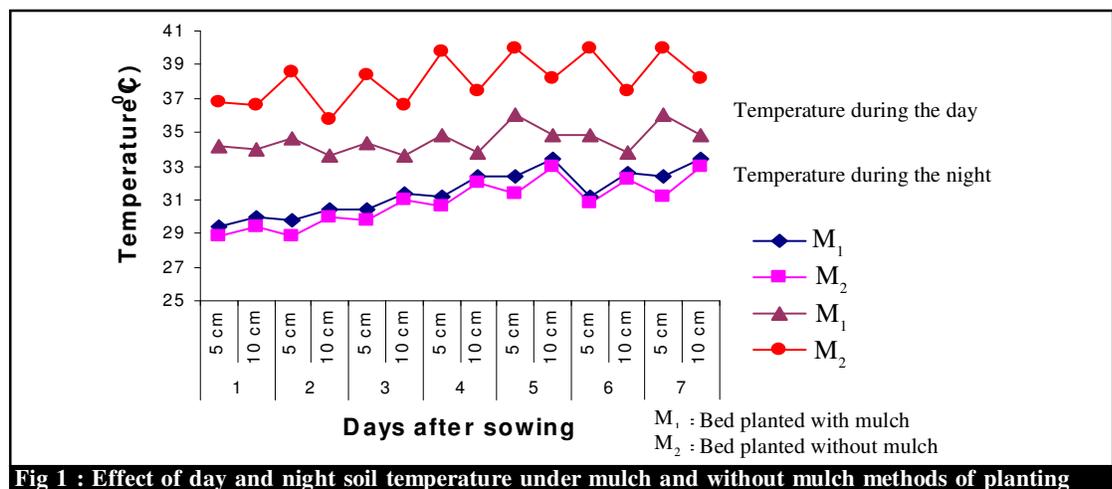


Fig 1 : Effect of day and night soil temperature under mulch and without mulch methods of planting

Accepted :  
December, 2008