Vermiculite--
Aid to Lettuce

Tests Show Its Value as Mulch To Improve Germination in Fall

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Horticulture

Here's the attachment used in banding vermiculite over lettuce seed rows. Note the V-shaped rows in foreground before vermiculite application started.

Vermiculite—an old timer in the group of building-insulating materials is a newcomer to outdoor agriculture.

Good for Lettuce

Based on data obtained from an experiment conducted at the University of Arizona Agricultural Experiment Station near Mesa, this insulating material applied as a mulch appears to hold great promise for early fall lettuce producers. It should be a great aid in overcoming some of the chief difficulties associated with this crop—namely, poor germination and spotty seedling emergence arising from unfavorable weather conditions.

Poor emergence and spotty stands often occur as a result of heavy and sporadic rainfalls during the planting, germinating, and sprouting period from mid-August to early September. Such rainfall, by washing soil into the small V-shaped depression left by the planter shoe, results in the seed being covered too deeply. This relatively heavy layer of soil, which is usually in the form of a thick crust, is often too resistant for satisfactory emergence of the lettuce seedlings. This results in a weak, spotty stand.

The prevention of this washing is easily and practically accomplished by filling the V-shaped shoe depressions with vermiculite, Such an application is commercially feasible through the use of a light-weight, inexpensively constructed metal container with flexible tubing down-spouts mounted to the rear of the seeder units on a commercial vegetable sled. (See picture above).

Is Light, Fluffy

Since vermiculite is a fluffy, light-weight material which does not compress or compact when dry or wet, its use does not retard or adversely effect seedling emergence. Other virtues of this material which may play an important part in enhancing earlier and more uniform seedling emergence, are its effects on reducing soil temperatures and a slowing down of the surface soil drying.

It is common knowledge that lettuce seeds will not germinate well, if at all, when the soil temperature reaches approximately 80 degrees F. or higher and remains there for extended periods. Although no temperature readings were taken in this test, it appeared that the shading and light-reflecting effect, without reducing the air movement in and around the seed zone, improved germination and accelerated seedling emergence. Also, through its shading and light reflection characteristics, it markedly reduced the normally rapid drying which takes place in the 1/8 to 1/4-inch layer of soil covering the seeds.

Further, by reflecting light and heat rays, and by allowing free passage of air over the moist soil which the vermiculite covers, there is probably created a cooling effect similar to that found with an evaporative cooler.

Absorbs Water

In addition, the sponge-like capacity of vermiculite for absorbing water

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Lettuce cut from center bed of plot mulched with 1-inch band of vermiculite over seed row. Variety: Imperial 44. Note the large, uniform, well-developed heads. ▼

Lettuce cut from center bed of untreated plot. Variety: 44. Note lack of uniformity; small, poorly developed heads. ▼

Just What Is Animal Husbandry?

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production, marketing and judging are the applied courses taken.

The animal-husbandry student may elect courses in other colleges, such as public speaking, business law, accounting, political science. Or if the research field appeals to him, he may take more science courses.

The production and management type jobs in farming and ranching are generally open to those who have completed the Bachelor's degree in animal husbandry. Most jobs in research, teaching, and extension in agricultural colleges and government service require some graduate study toward advanced degrees.

Vocational Experience Important

Many young people who do not have a background of farm or ranch experience seek practical training on an extra-curricular basis. Employment during the summer or for a longer period in some type of livestock operation, as a part of the training program, aids immeasurably in acquiring a sound understanding of animal husbandry.

There will be opportunity following graduation to concentrate upon the manual or "practical" requirements of the job. Upon graduation the student cannot expect immediately to undertake highly responsible positions without first working in an apprenticeship capacity to gain broad experience and mature judgment.

The great magnitude and varied aspects of livestock and meat production afford favorable employment opportunities in both the strictly professional and commercial fields.

Check Cooking Utensils

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temperature. Tin utensils may warp. They rust if the thin plating is scratched or worn.

Most of these disadvantages may be avoided or reduced by careful use and by following correct cleaning methods for each material.

Look for such construction features as smooth surfaces, freedom from cracks and crevices, comfortable heat-proof handles, flat bottoms, tight fitting lids. Select pans of good proportion, balance, and design. With these points in mind your selections may well result in simplification of your work and greater efficiency in your kitchen.

Vermiculite— Aid to Lettuce

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without affecting air passage, further improves the cooling values of the material. This cooling could effectively improve germination by helping reduce and maintain soil temperatures below the critical 80 degrees F. level.

Comparing figures in Table 1, it is easily seen that seedling emergence was significantly improved over the

TABLE 1 — AFFECTS OF VERMICULITE APPLICATIONS ON OBTAINING A STAND OF HEAD LETTUCE

TREATMENT	Stand Count Per Linear Ft. of Seed Row
Vermiculite Broadcast over Entire Bed Surface	62 Seedlings
VERMICULITE Applied as 1" Band over Seed Row	61 Seedlings
CHECK No Vermiculite Applied	26 Seedlings

check treatment. Statistically, there was no difference in stand count between the methods used to apply the Vermiculite mulch. However, since the quantity of mulching material used in treatment 1 was approximately twice that used in treatment 2, the broadcast method is considered much less desirable from a practical standpoint. Further, covering the entire bed area, as in treatment 1, encourages weed seed emergence and growth in the center of the beds.

From the figures tablulated in Table 2 it is clearly shown that not

TABLE 2 — AFFECTS OF VERMICULITE ON YIELDS FROM HEAD LETTUCE

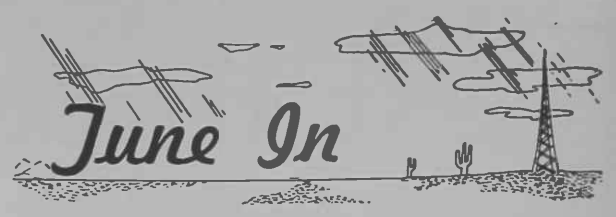
TREATMENT	Marketable Heads Per Plot		
	Head Size		Total
	4 Doz.	5 Doz.	Yield
VERMICULITE Broadcast over Entire Bed surface	36	12	48
VERMICULITE Applied as 1" Band over Seed Row	39	9	48
CHECK No Vermiculite Applied	24	15	39

only is the total yield significantly improved, but also the yield of the desirable 4-dozen size heads. The pictures at the bottom of page 6 show the effects of vermiculite on head uniformity and development. Note the uniform and well developed heads cut from the treated plot as compared with the irregular sizes and somewhat poorer developed heads cut from the check plots.

Advantages Are Many

Probable advantages of using vermiculite for fall lettuce production are: (1) Improved germination; (2) Faster and more uniform seedling emergence; (3) Improved seedling and plant uniformity; (4) Possible reduction in seeding rates for early fall lettuce; and (5) Possible reduction in the amount of irrigation water normally required to keep the seed beds moist.

The use of vermiculite need not be restricted to lettuce production but could be used economically on other vegetable crops and certain agronomic crops, especially where crusting due to rainfall interferes with proper seedling emergence.



DAILY (EXCEPT SUNDAY)

KTAR, Phoenix, 6:15 a.m. — Farm Front — Maricopa County Extension Agent.

SUNDAYS

KOY, Phoenix, 8:45 a.m. — Demonstration Garden (County Agent) Program.

MONDAYS

KYMA, Yuma, 7:00 a.m. — On the Farm Front.

KCLS, Flagstaff, 9:45 a.m. — Your County Agent Reports.

MONDAY THROUGH FRIDAY

KYUM, Yuma, 7:20 a.m. — Yuma County Agricultural Extension Service Radio Program.

FRIDAYS

KCKY, Coolidge, Casa Grande, 4:00 p.m. — Pinal County Farm and Home Program.

SATURDAYS

KTUC, Tucson
KSUN, Bisbee
KOY, Phoenix — 1:00 to 1:30
KYMA, Yuma
KCLS, Flagstaff

Arizona Farm and Ranch Hour, presented by the Radio Bureau, University of Arizona, and the College of Agriculture.

KGLU, Safford, 1:00 p.m. — Stepping Along with the Agricultural Extension Service.

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With this issue, **Progressive Agriculture in Arizona** begins its fifth year of publication. We sincerely hope that it is doing the job for which it was established—reporting to you research and other activities of all branches of the College of Agriculture of the University of Arizona, Tucson.

We are always glad to receive your suggestions as to how this publication can be of better service to the farm and ranch people of Arizona

—Publications Committee