

WHAT IS AN INOCULANT?

An inoculant is a highly effective form of *Rhizobia* bacteria that, when placed in close proximity to a legume seed at planting, stimulates the formation of nitrogen-bearing "nodules" on the roots. Common legumes are: clover, alfalfa, garden beans, garden peas, fava beans, soybeans, peanuts, lespedeza, lentils, lupine, and vetch. When tilled in following seasonal maturity and returned to the soil, these nodules add readily and easily assimilable nitrogen. Inoculation is a low-cost way to ensure nodulation in an environmentally safe manner.

WHY INOCULATE?

- **Fertilizer savings.** Seventy-nine percent of the air we breathe is made up of nitrogen. Inoculated legumes are able to convert and use this "free" nitrogen, measurably reducing the need for artificial supplemental fertilizer. Properly nodulated legumes are capable of adding 55 to 300 pounds of nitrogen per acre to soil.
- **Higher yields.** Legume harvests average more pounds per acre when properly inoculated, which increases total production and, therefore, income. Similar results can be expected in the hobby/home garden.
- **Continued effectiveness.** Because *Rhizobia* bacteria lose their nitrogen-fixing effectiveness—become "lazy"—over time, it is suggested that fresh inoculant be used at planting time every two to three seasons—and *always* when planting new ground that has not previously been inoculated. Continuous use of fresh *Rhizobia* will maximize yield benefits as these "fresh" *Rhizobia* will out-compete the indigenous nodule-forming bacteria for root nodulation.
- **Improved soil conditions.** When mature legumes are tilled in, they decompose rapidly, increase organic matter in the soil, and improve a soil's physical, chemical, and biological condition.

CHECKING INOCULANT EFFECTIVENESS

To gain maximum soil-building, nitrogen-fixing effectiveness from inoculants, periodic examination of legume roots is helpful. Using a garden spade or fork—rather than pulling the plant from the ground—dig a maturing plant and look closely at its root structure. If necessary, rinse away excess soil. Using a sharp knife, slice open a few nodules and check the color. Nodules that are actively fixing and converting free nitrogen to ammonia (plant food), are pink or red; white nodules are either underdeveloped or are ineffective; soft, green nodules are past their prime and have already contributed to the plant's nitrogen economy.

INOCULANTS OFFERED BY JOHNNY'S

- **9110 Garden Combination.** For snap, dry and lima beans, and peas. Treats 8 pounds of seed. (*Bradyrhizobium* sp. and *Rhizobium leguminosarum* biovar *viceae* and biovar *phaseoli*)
- **9111 Garden Combination.** Same as 9110, but treats 50 pounds of seed.
- **9152 Soybeans.** Treats 300 pounds of seed. (*Bradyrhizobium japonicum*)
- **9115 Alfalfa/Sweet Clover/Clover Combination.** Treats 50 pounds of seed. (*Sinorhizobium meliloti* & *Rhizobium leguminosarum*)

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