

Vegetative Propagation of Alfalfa by Stem Cuttings

Alfalfa is an outcrossing species, cultivars consist of populations rather than individual homozygous or inbred lines. After only two cycles of self-pollination, severe inbreeding depression eliminates selfed individuals from populations. To obtain sufficient plant material of relative genetic uniformity (these plants will still necessarily be heterozygous) for experimental purposes, it may be necessary to propagate a single individual or clone. A relatively simple technique is described below.

1. Select vigorous healthy plant material for preparing cuttings.
2. Severely head back a plant in the greenhouse, bring that material into the lab and there prepare individual cuttings for rooting.
3. Using a sharp razor blade cut 5-10cm lengths of alfalfa stems. Although any stem should work, more rigid stems do seem to yield greater rooting.
4. Include two to three petioles with their leaves in each cutting. Remove a portion of the upper leaves if they are excessive (you don't want the leaves to evapotranspire too fast because there are no roots); otherwise leave them intact.
5. Remove the lower leaf and leave just a small section of the leaf petiole. This seems to result in better crown formation.

(Wrap the stems in a moist paper towel if they will sit for several hours prior to placing them into soil.)

6. Dip the end of the cutting into ddH₂O and then into a 0.1% auxin rooting hormone such as Hormodin 1 (0.1% IBA), a product from Olympic Horticultural Products (<http://www.olympichort.com/>) available at most nurseries.
7. Place the stem cutting into sterile, dry soil burying the lowest petiole.
8. Place 3-4 cuttings in a 4" pot
9. Saturate the soil with water and place the pot into a mist chamber in the greenhouse.
10. These cuttings should root in 1-3 weeks. Test for rooting by gently tugging on the cuttings.
11. Remove the rooted cuttings from the mist chamber and transplant the whole root mass to a larger pot and place in the greenhouse.
12. Alfalfa can grow quite vigorously in the greenhouse. Frequent cutting back is essential.
13. Once, established these clonal selections can be easily propagated by divisions. Simply remove the soil from the pot and tear or cut portions of the rhizomatous mass into sections and plant each into fresh soil burying the old crown.

