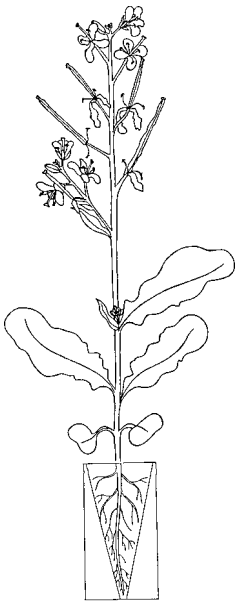
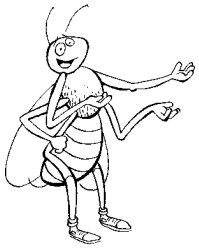
Farmers Almanac: Guide for Fast Plants Farmers

Principles of Farming Practice	Environmental Resources Needed for Farming	Key Environmental Resources in Fast Plants Farming
1. When to plant	• when temperature is favorable	• temperature ~ 20-24^0 C
2. What is needed to start the crop? (seed germination)	• viable, vigorous seed • rain or irrigation water with good drainage • good soil oxygen supply maintained by soil structure and tillage	• viable, vigerous seed • capillary wicking of water reservoir • well aerated root medium of peatlite and vermiculite
3. As the seedlings grow, what environmental resources are needed in addition to soil, water and oxygen?	• sunlight • fresh air containing $C0_2$ • mineral elements in the soil and added fertilizer	• continual or optimal levels of light from a fluorescent light bulb in a Plant Light House • fresh air • mineral nutrients dissolved in water and delivered hydroponically (e.g. 1/8X Peters Professional®)

4. Challenges to maintaining a healthy crop	• know your growing crop
	• read signs of stress or vulnerability
	• water stress or drought
	• inadequate light
	• too much heat
	• soil fungi
	• insect infestation
	• nutrient stress, deficiency
	• nutrient excess, too much fertilizer
	• chemical toxicity in soil or air
	• reduced resources due to competition from members of existing crop plants or other (weed) species
		• read and gain experience
		• signs of stress or vulnerability
		  • wilting
		  • spindly plants, few flowers
		  • spindly plants, male sterility (no pollen shed)
		  • seedling death by decay, 'damping off"
		  • aphids, thrips, chewing pests
		  • stunted growth, lower leaf yellowing, accentuated purple color
		  • excessively large leaves and stems
		  • reduced growth, leaves yellowing
		• growing area and/or soil volume inadequate, competition for nutrients from algae in nutrient solution in reservoir

5. Preparing for a good seed yield	• insure timely and adequate pollination of all flowers with compatible pollen • provide a stress-free postpollination growing environment to favor strong embryo and seed development	• interpollinate all unpollinated flowers every day or two using a beestick or other pollen transfer device • provide adequate, but not excessive, nutrients and water • provide adequate time under optimal conditions for full embryo and seed development (20-24^0 C); 20 days between last pollination and harvest is minimum for Fast Plants
6. Ensuring a successful seed harvest	• provide warm, dry air for seed ripening • protect from seed loss (shattering) • recover all seed • separate healthy seed from shriveled, weak seed and dry plant debris • package seed in clean, labeled container	• withhold water or cut off plants; if possible, place in warm (not hot) location until seed pods are crisp and shatter (shed seed) upon rubbing • place cut plants in boxes or paper bags • harvest seeds carefully, being sure not to lose any seed • carefully pick, screen or blow seed to remove chaff and debris
7. Storage of seed crop	• place seed packages in cool, dry storage with protection from heat, moisture (high humidity), and seed pests (insects, microbes, rodents, birds) • test seed quality, viability and vigor	• store in seed envelopes labeled with seed stock name or number and date. Indicate the number of plants intermated to produce the seed • store seed envelopes in refrigerator in a moisture-proof jar, preferably with indicator silica gel drying compound • germinate 20-50 seed sample on moist towel or filter paper and calculate germination percentage; describe vigor and germination uniformity • put % germination and date of test on seed package





Please note that the Wisconsin Fast Plants website includes many information documents -WFPID's- which provide detailed information for teachers.