



Wisconsin Fast Plants™

Seed Stock Profile

Yellow-Green Leaf

Single, recessive trait: *ygr/ygr*

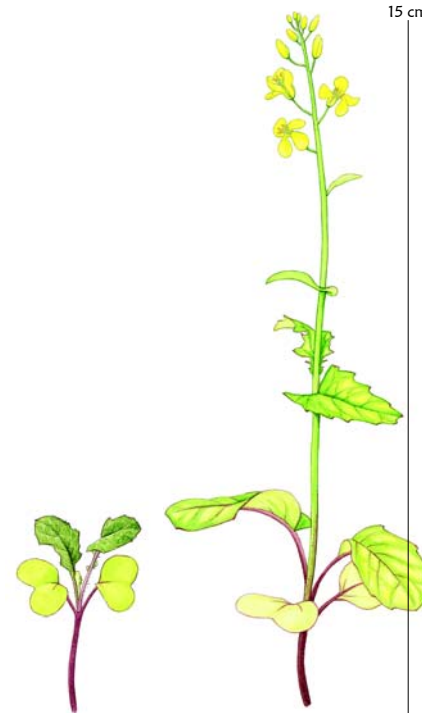
In Yellow-Green Leaf plants, the cotyledons, leaves, stems, and developing seed pods are a pale, yellow-green color, in contrast to the darker, more intense green of Standard Wisconsin Fast Plants™.

The Yellow-Green Leaf trait was first detected as a single, pale-yellow seedling in a population of otherwise green seedlings. The phenotype is conditioned by a single, recessive gene (*ygr*). In the homozygous, recessive condition (*ygr/ygr*), the plants appear to be a yellow-green color.

The purple color is caused by the presence of anthocyanin, a pigment found in many plants. It is visible on the hypocotyls, stems, leaf tips, and hydathodes. The intensity of the purple color is affected by the environment. More light or less fertilizer yields a deeper purple color. Petri-plate germination yields a deeper purple color than pot-grown plants, but is not recommended for observing the yellow-green trait.

Hairs, known as *trichomes*, are found in varying numbers, mostly on the stems and leaves. Plants of this stock have been selected to be hairy. Unlike anthocyanin expression, the number of hairs appears to be unaffected by environmental conditions.

Length of life cycle: 35-45 days
Days to flowering: 15
Average plant height at day 15: 15 cm



7-day-old plant
Yellow-Green Leaf
(*ygr/ygr*)

15-day-old plant
Yellow-Green Leaf
(*ygr/ygr*)

Growing Tips

- 24-hour fluorescent light, water, and fertilizer are essential for Wisconsin Fast Plants™. Refer to *Growing Instructions* for more details.
- Prior experience growing Standard Wisconsin Fast Plants™ is useful for comparison to Yellow-Green Leaf.
- Yellow-Green Leaf plants produce less chlorophyll than Standard Wisconsin Fast Plants™, and their development time is slightly delayed.
- Purple color is best observed on the hypocotyl or under the leaves, 4-7 days after planting.

A Big Idea: Is More Food Better?

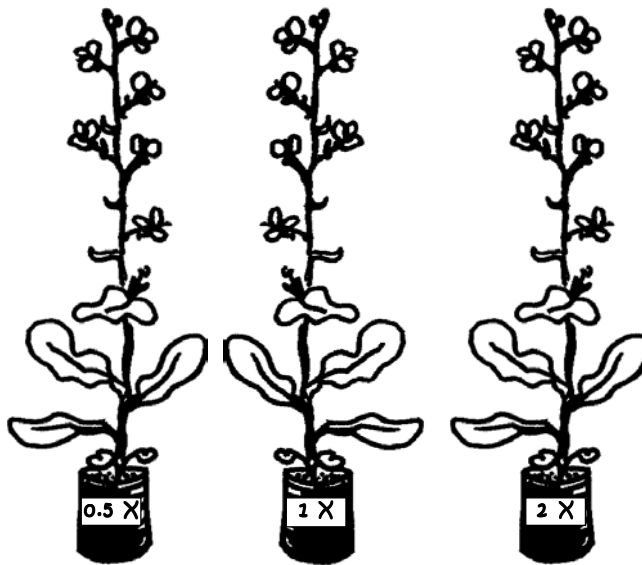
Objective: Explore the effect of increased fertilizer on Wisconsin Fast Plants™.

Time required: 7-45 days, depending on experiment.

Procedure:

1. Predict how the plants will respond if they are fed different levels of fertilizer. Determine a series of nutrient concentrations that you will test.
2. Think about what plant responses you plan to measure. How old will the plants be when you measure them?
Ideas: Plant height, intensity of purple expression, number of hairs, development time (for leaves, flowers, or seed pods), seed number, or seed size. (Keep in mind that you'll have to pollinate the plants with a beestick if you plan to produce seeds.)
3. Plant Yellow-Green Leaf seeds, following the *Growing Instructions*, but add the appropriate amount of fertilizer according to your experimental design.
4. Record your measurements on the appropriate days.
5. How do the plants, grown with different amounts of nutrients, compare? Describe your observations.

For more information about this activity (*Is More Food Better?*), go to www.fastplants.org



Nutrient Levels



Wisconsin Fast Plants™ Seed Stocks Available:
Standard • Purple Stem, Hairy • Non-Purple Stem, Hairless
Non-purple Stem, Yellow-Green Leaf • Yellow-Green Leaf • Petite
Rosette-Dwarf • Tall Plant • Variegated • F₁ and F₂ Genetic Stocks

To order Wisconsin Fast Plants™ materials and seeds:
Carolina Biological Supply Company, 2700 York Road, Burlington, NC 27215 1-800-334-5551
Ordering info: www.carolina.com/fastplants Activity ideas: www.fastplants.org