



Wisconsin Fast Plants™

Seed Stock Profile

Purple Stem, Hairy

High Anthocyanin

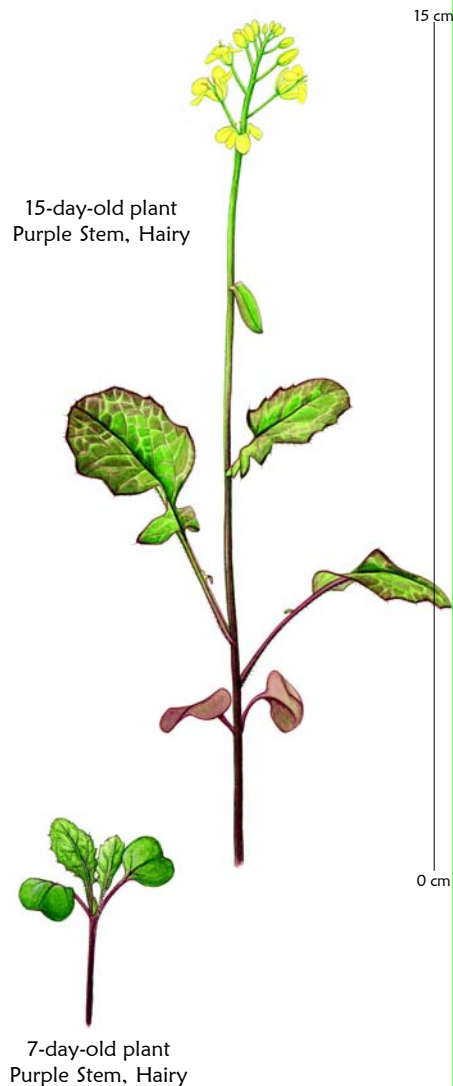
Purple Stem plants produce a purple pigment (anthocyanin) that is visible on the stems and hypocotyls, under the cotyledons, and at the leaf tips and hydathodes.

The presence or absence of anthocyanin is controlled by a single gene (*anl*); in the homozygous recessive condition (*anl/anl*), no anthocyanin is expressed. If the genotype is *anl/ANL* or *ANL/ANL*, then anthocyanin is expressed in varying levels. Plants of this stock have been selected for high levels of purple.

The purple color is best observed on the hypocotyls (stems) or under the cotyledons when the plants are 4-7 days old. The intensity of the purple color is affected by the environment. More light yields a deeper purple color, as does reduced fertilizer. Petri-plate germination yields a deeper purple color than pot-grown plants.

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 not to be affected by environmental conditions.

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



Growing Tips

24-hour fluorescent light, water, and fertilizer are essential for Wisconsin Fast Plants™. Refer to *Growing Instructions* for more details.

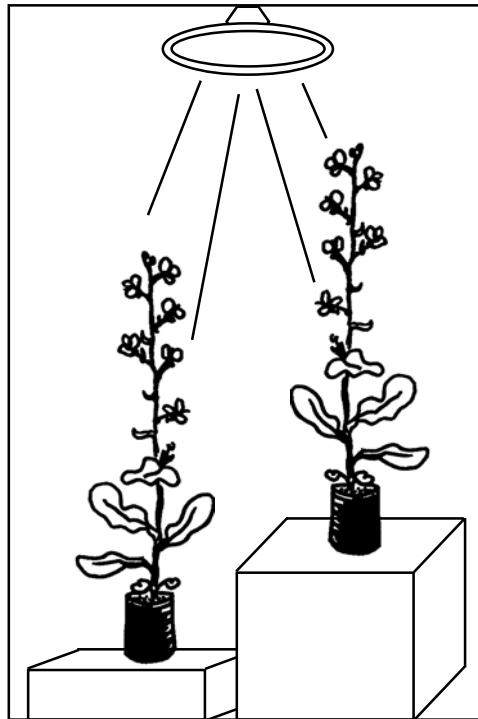
The Effect of Light on Purple Color, Hairiness, and Height

Objective: Determine the effect of light on Wisconsin Fast Plants™, with regard to the intensity of purple, the number of hairs, and the height of the plants.

Time Required: 14 days (Most days require little or no activity.)

Procedure:

1. Predict what will happen if the plants are grown at varying distances from their light source. How will the differences in light intensity affect the anthocyanin expression, hairiness, or plant height? Determine what distances from the light that you will test. Think about how you will quantify the intensity of purple, hairiness, and plant height.
2. Plant Purple Stem, Hairy seeds, following the *Growing Instructions*, but vary the distance of the plants from the light according to your experimental design.
3. Record your measurements when the plants are 14 days old.
4. How did the plants respond to different distances from the light, with regard to anthocyanin expression, hairiness, and height?
5. Try varying other environmental factors to see if they affect anthocyanin expression, hairiness, or height. *Ideas: nutrient levels, toxic substances, and water.*



Written by Wisconsin Fast Plants Program 2001. Layout by Sarah Lauffer. Color art by Allison Schroeder. Line art by Amy Kelley.

CAROLINA®

Wisconsin Fast Plants™ Seed Stocks Available:
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To order Wisconsin Fast Plants™ materials and seeds:
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