



Wisconsin Fast Plants™

Seed Stock Profile

Variegated

Maternally inherited trait: Var

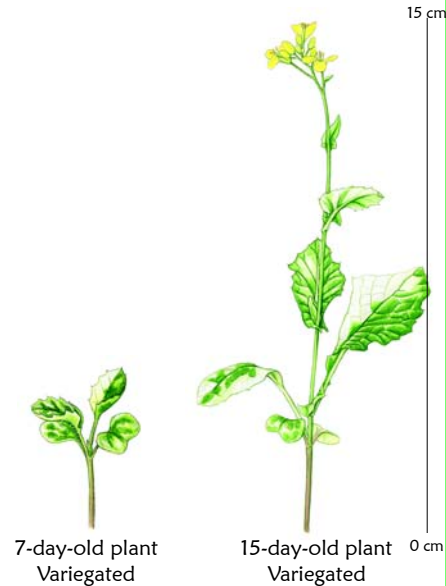
Variegated plants are characterized by distinctive patterns of green and white on any plant parts that contain chlorophyll. The variegation can range from large patches of white to fine, white mottling amid mostly green.

Inheritance of the variegated trait is cytoplasmic, which means that the genetic information is carried in the chloroplastic DNA and is not part of the DNA in the cell nucleus. The genetic information for variegation is transmitted only through the egg cell, not the pollen. Variegation does not follow Mendelian patterns of inheritance.

The variegated phenotype is thought to be the result of a mutation in the chloroplastic DNA. The mutation causes cells and tissues to lack chlorophyll, so they appear white.

After fertilization, the zygote contains a mixture of normal (green) and mutant (white) chloroplasts. As the cells divide, the number of normal and mutant chloroplasts divides randomly. The chloroplast combination determines the color of each cell in the maturing plant, which yields the plant's overall variegation pattern.

Length of life cycle: 35-45 days
Days to flowering: 15-16
Average plant height at day 15: 15 cm



7-day-old plant
Variegated

15-day-old plant
Variegated

Growing Tips

- 24-hour fluorescent light, water, and fertilizer are essential for Wisconsin Fast Plants™. Refer to *Growing Instructions* for more details.
- The amount of variegation varies considerably from plant to plant.
- Plant parts that develop earlier tend to have larger patches of white, while later development yields smaller white patches.
- When crossing several variegated plants, seeds that are formed from flowers on white branches will have considerably larger white patches than seeds from flowers on green branches.
- More white color means less chlorophyll, which can result in reduced plant vigor or seed sets.
- Prior experience with growing Standard Wisconsin Fast Plants™ is useful for comparison with Variegated.

Variegation Patterns in Plants (Maternally Inherited)

Objective: Explore the inheritance of variegation patterns in Variegated Wisconsin Fast Plants™.

Time Required: 55 days (Most days require little or no activity.)

Procedure:

1. Plant several Variegated Wisconsin Fast Plants™. Tend them according to the *Growing Instructions*.
2. Map the variegation of a 14-day-old plant by drawing or tracing the white and green tissue, then estimate the percentage of each.
3. Work with 3 or more classmates. Cross-pollinate your plants. Note the color of each branch with flowers (white or green) and record it, because the color will fade as the plants dry out later. Predict what percentage of white vs. green tissue the offspring will have.
4. Continue to tend your plants until the seeds are ready to harvest. (See *Growing Instructions* for details.) Keep track of what color branch each seed pod originated on.
5. Plant the seeds, and tend the seedlings for 14 days.
6. Map the variegation of the 14-day-old plants. Estimate the percentage of white vs. green tissue.
7. How did the percentages of white vs. green tissue correspond to the color of the branch that each seed originated from?



CAROLINA®

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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