CEREAL RYE (*Secale cereale* L.)

Cereal rye is the workhorse small grain cool season cover crop in the Piedmont, Mountains, and Ridge & Valley. It produces the most biomass of the small grains. Small-scale vegetable farmers should make sure they can effectively manage that amount of biomass. Mature cereal rye has a high carbon:nitrogen ratio; consequently, additional nitrogen fertilizer may be need to help the residue decompose after it is incorporated. Cereal rye suppresses root-knot nematodes.

Recommended Varieties

Variety	Reasons Why	Source
Wrens Abruzzi	Cheap, easily available, good biomass, few diseases.	
Winter Grazer	High biomass.	
Elbon, Maton, FL 401	Elbon is a recommended variety from Georgia Statewide Variety Trials. Maton is an older variety that has good yields in Georgia Statewide Variety Trials. Florida 401 is very early maturing variety.	Jimmy Carter Plant Materials Center data

Planting Information

Information		Comments	Source
Drilled Seed Depth (inches)	¾ - 2		Managing Cover Crops Profitably
Drilled Seeding Rate (lbs/acre)	60 - 70		Managing Cover Crops Profitably
Broadcast Seeding Rate (lbs/acre)	70 - 100	Rye has the highest likelihood of broadcast seeding success of any of the small grains. Sufficient rainfall or irrigation is needed to promote germination.	Managing Cover Crops Profitably

Termination Information

Information	Source
Most vegetable farmers use mowing and incorporation for termination. Flail mowers provide the finest residue and most even distribution, but rotary mowers can be used. Small scale farmers can use weed-eaters on smaller beds. Residue should be incorporated as soon after mowing as possible. Leave at least 2 weeks for residue to decompose before planting. If there is high biomass, then 3 weeks or more may be needed. Planting too soon after termination can not only tie up nitrogen, but may lead to problems with other pest such as seed corn maggots. Decomposition is greater in moist, warm conditions. If the soil is dry then irrigation may be necessary. Cool soils conditions will lengthen time needed before planting. Continued….	USDA Cereal Rye Plant Guide

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Termination Information (cont.)

Information	Source
With no-till production, apply herbicide and then roll and crimp 2 days later. For organic systems, roll/crimp, and then repeat in same direction 2-3 days later. For weed suppression, cereal rye should be terminated at milk to soft dough stage. To reduce potential nitrogen immobilization, it should be terminated before flowering. For strip tillage, growers may want to prepare strips in fall (either with herbicide, mechanical cultivation or simply plugging those outlets on the drill). This can allow for easier management of strip tillage in spring. If terminating with herbicides, consult your local Extension and state Pest Management Handbook for herbicide recommendations. Always follow the herbicide label.	USDA Cereal Rye Plant Guide

Cultural Traits

Traits		Comments	Source
Typical Dry Matter Range (lbs/acre)	3,000 - 8,000		Managing Cover Crops Profitably (modified by research data from Piedmont and Ridge&Valley)
Typical Total N Range (lbs/acre)	25 - 50	These values are for total N in cereal rye aboveground biomass is due to N scavenging. N in cereal rye residue is not available during following growing season. Early termination may provide a small amount of N to following cash crop. Late termination can cause N immobilization due to high C:N ratio.	Managing Cover Crops Profitably
Life Cycle	Cool season annual grain		Managing Cover Crops Profitably
Growth Habit	Upright		Managing Cover Crops Profitably
Preferred Soil pH	5.0 - 7.0	Cereal rye is more tolerant of acidic soils than oats or wheat. It is more adapted to sandy soils than other small grains.	Georgia Forages, Managing Cover Crops Profitably
Relative Costs ($/acre)	$$$		Based on survey of seed costs using maximum price and max seeding rate
Min. Germination Temp (F)	34°	Cereal rye is best choice for late planting as it grows at 5 degrees lower temperatures than other small grains.	Georgia Forages, Managing Cover Crops Profitably, Noble Research Institute
Cautions	High biomass can cause temporary nitrogen immobilization. An additional 20 to 30 lbs N/acre at planting will alleviate this.		

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Sources:

Georgia Forages:
http://www.caes.uga.edu/extension-outreach/commodities/forages/species-and-varieties/cool-season/rye.html

Jimmy Carter Plant Materials Center Annual Reports:
https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ga/plantsanimals/?cid=nrcs144p2_022076

Managing Cover Crops Profitably: https://www.sare.org/Learning-Center/Books

USDA Cereal Rye Plant Guide:
https://plants.usda.gov/factsheet/pdf/fs_sece.pdf