

Crop Fact Sheet

CAROLINA GOLD RICE

HISTORY:

The introduction of ‘golden rice’ into South Carolina is somewhat elusive. Traditionally, it is believed that in 1685-86 Captain John Thurber was headed home to Liverpool from Madagascar when he was caught in a devastating storm, which guided him off-course and into the Charles Town Harbor. While waiting for his repairs, Thurber befriended a man by the name of Dr. Henry Woodward who was working as a surgeon on marine vessels. It is believed that Thurber gave Dr. Woodward a peck of seed rice from Madagascar, rice with a golden hue.¹

The majority of rice originating from Africa is believed to have been brought to South Carolina primarily by the slaves who were coming from Madagascar, and various parts of West Africa such as Sierra Leone. The low-lying marshlands and similar climate of South Carolina proved to be the ideal environment for rice production.

By the 1700s, rice was a major cash crop for the Lowcountry and the extremely popular golden hued rice was finally given a name, “Carolina Gold”. The crop was so successful that the ships taking it to England were overwhelmed by the magnitude of bagged rice awaiting departure.²

The slaves from West Africa were of particular interest to plantation owners, because of their vast knowledge of rice production. This crop is delicate and quite labor intensive to plant and harvest, and required many knowledgeable hands tending to the fields. However, once slavery was abolished it was impossible to continue outputting rice to this measure. Paired with hurricanes and crop competition, the rice industry greatly suffered in South Carolina.³ Today, many farmers, historians and even chefs are interested in bringing this heirloom crop back into production in the Lowcountry for its heritage, superior quality, and golden originality.



Photo Credit: Anson Mills



Photo Credit: Grace Beahm, Post & Courier

PLANT CHARACTERISTICS

TAXONOMY	<i>Oryza glaberrima</i>
DURATION	Annual
HABIT	Grass family
SIZE	4'
FLOWERING TIMEFRAME	105 days
MOISTURE	Wet muck soils or semi dry land until flowering and then saturated beds are required
TEMP	Tropical hot

¹ Schulze, R. (2005). *Carolina Gold Rice :The Ebb and Flow History of a Lowcountry Cash Crop*. Charleston, SC :The History Press, 2005.

² “American Rice, Inc.” American Rice, Inc. USA Rice Foundation, n.d. Web. 08 Sept. 2015. <<http://www.amrice.com/6-0.cfm>>.

³ SRI International Network and Resources Center.”The System of Rice Intensification. N.p., n.d. <<http://sri.cals.cornell.edu/>>.

PRODUCTION TECHNIQUES:

1. FLOODED RICE BED METHOD: TRADITIONAL METHOD

- Maintaining a consistent water depth (around 5 in.) has been shown to help mitigate weeds and therefore requires less herbicide.
- Flooded beds require seeds to be drilled by a grain drill at 110 lbs per acre with fertilizer applied at 160 lbs per acre.
- Creating berms (raised barrier walls) 2-6 inches tall and lining them with plastic will allow less seeping water.

2. SYSTEM OF RICE INTENSIFICATION (SRI) METHOD: MODERN METHOD

- SRI method is an agro-ecological methodology for increasing the productivity of irrigated rice by changing the management of plants, soil, water and nutrients.⁴
- Benefits of SRI are:
 - Early, quick and healthy plant establishment
 - Reduced plant density
 - Improved soil conditions through enrichment with organic matter
 - Reduced and controlled water application
- There are, however, more upfront costs with SRI as more equipment and herbicides are necessary.
- Seedlings are transplanted after 8-12 days of growth in a grid network on 10". Bare ground is preferred. Can be inter-cropped with white clover.
- Only a minimum amount of water is applied during the vegetative growth period. A 1-2 cm layer of water is introduced into the paddy, followed by letting the plot dry until cracks become visible, at which time another thin layer of water is introduced. During flowering a thin layer of water is maintained, followed by alternate wetting and drying in the grain filling period, before draining the paddy 2-3 weeks before harvest. This method is called 'intermittent irrigation' or 'Alternative Wetting and Drying' (AWD). Some farmers irrigated their fields every evening; others leave their fields drying out over 3-8 days, depending on soil and climate conditions.

HARVESTING:

Before harvesting can begin the fields must be drained for both the SRI and flooded bed methods. The grain moisture should be about 20-25%, firm and not too brittle when squeezed.

Harvesting the rice can be done by hand or combine method. Picking the crop by hand is quite time-consuming. Using a combine harvester combines all operations: cutting the crop, feeding it into threshing mechanism, threshing, cleaning, and discharge of grain into a bulk wagon or directly into bags. Plant matter is usually discharged behind the combine in a windrow.



*The three stages of Carolina Gold Rice: Raw, Dried, Hulled.
Photo Credit: Frank Hyman*

POST-HARVEST HANDLING:

The rice must be immediately prepared for drying so the grain can be stored. Delays in drying can negatively affect the grain quality. Ideally the rice will be dried within 24 hours of harvest. Ambient air and low-humidity is ideal for drying the rice. If the rice is desired to be stored as seed, a 12% moisture content (MC) is required. However, to store the rice as a grain a 14% MC is required.

TWO METHODS FOR DRYING:

- Heated air-drying employs high temperatures for rapid drying and the drying process is terminated when the average moisture content (MC) reaches the desired final MC.
- Low-temperature drying aims to control the relative humidity (RH) rather than the temperature of the drying air so that all grain layers in the deep bed reach equilibrium moisture content (EMC). Low temperature drying is a more autonomous method for the rice. EMC is met when the rice moisture matches the surrounding moisture content.

Storing Carolina Gold in a safe environment is crucial to protect it from pests, fungi, and adverse weather conditions. The seed or grain may be placed into bags. A popular type of bag to use is made of jute, which is a rough fiber made from the stems of a tropical Old World plant.

MARKETING:

Farms and businesses that are marketing and promoting the production and sale of Carolina Gold rice are primarily:

Anson Mills

1922-C Gervais St.
Columbia, SC 29201
(803) 467-4122

Anson Mills will purchase organically grown Carolina Gold, and will dry, process, and mill local farmer's rice for negligible fee. Seed is available for purchase to farmers working with this company.

Rosewood Market

2803 Rosewood Drive
Columbia, SC
(803) 765-1083

Carolina Plantation Rice

PO Box 505
Darlington, SC 29532
(843) 393-1812
Carolina Plantation Rice will purchase conventional Carolina Gold.

Whole Foods Market

923 Houston Northcutt Blvd,
Mt Pleasant, SC 29464
(843) 971-7240
Whole Foods will purchase dried and processed rice for distribution.



Photo Credit: Clemson Public Service Activities

Farmers can either sell directly to these distributors or at local farmer's markets.

(Note: Farmer's markets can be time-consuming and unpredictable, whereas selling to a distributor guarantees return.)

"The amount of farmers that grow Carolina Gold Rice in South Carolina I can count on two hands."

- Glenn Roberts of Anson Mills

"Carolina Gold Rice is at the heart of the colonial and antebellum food ways and is at the heart of Charleston. Farmers should also invest to bring back the rest of the foodways associated with Carolina Gold Rice."

- Brian Ward, Research Specialist III, Clemson's Coastal Research and Education Center

"Carolina Gold was critical to the establishment of the U.S. rice industry. Because of its importance and its interesting suite of agronomic and quality traits, it likely will play a pivotal role in future U.S. rice breeding."

- Stephen Kresovich, Clemson Geneticist

WHERE TO BUY SEED:

Farmers can purchase seed at Southern Exposure Seed Exchange (SESE) at \$3.25 for 7g (230 seeds).

www.southernexposure.com/rice-carolina-gold-7-g-p-576.html

Also see Anson Mills above.