

Best Management Practices For Improving Rice Production And Quality

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Quality characteristics of the rice grain are a key factor for determining the market price and consumer acceptance of rice and rice products. Rice quality has many meanings depending on use of the rice, interests and ethnic backgrounds of the consumer and the health attributes of the food. Rice quality involves several factors such as milling quality; cooking, eating and processing quality; nutritive quality and specific standards for cleanness, soundness and purity. Rice quality characteristics vary depending on genetic and cultivation characteristics,

pound of medium-grain rice at the market can vary by 2 to 3-fold depending on taste preference whereas prices of long-grain rice tend to be similar. Recent research showed that consumer preference of medium-grain rice was 45 percent on taste, 27 percent on price, and 21 percent on perceived safety. This implies that price of medium-grain rice tends to focus on taste and safety of rice. Taste of medium-grain rice is related to various management factors including variety characteristics, crop and soil management technologies, climate factors and post harvesting processing. Generally, rice with high consumer preference contains less than 7 per-

Experiment	Factor	Description
Production	Variety Nitrogen	Bengal, Jupiter, Neptune, CL261 Conventional, 25%, 50%, 75% of conventional
Quality test	Milling quality	Whole-grain (head-rice) yield Milled rice and bran proportions Total yield of milled rice Milling uniformity Visual appearance of milled grain
	Cooking and processing	Amylose content Alkali spreading value Protein content Gelatinization temperature and type Amylographic viscosity
Sensory test	Consumer taste preference test	Test will be performed using 300 consumers of medium-grain rice.

Table 1. Sensory testing for quality of medium-grain rice varieties grown in Southeast Missouri.

but are not well understood by the general American public. Ultimately rice quality should be emphasized more in terms of marketing and be related to consumer preference of each rice product. Taste of rice depends on the processing, different starches in the grain and how the rice is cooked. Currently most of the rice grown in Southeast Missouri is long-grain and is well accepted by U.S. and several North African cultures. In contrast, medium grain rice is preferred by many East Asian cultures.

Most production of medium-grain rice in the U.S. occurs in California. But water shortage issues are becoming a negative factor to increased production in the California area. This has led to some states, including Arkansas and Louisiana, to promote increased medium-grain rice production by their farmers. Thus, merely increasing medium-grain rice production in Missouri may lead to a price decrease due to more competition at the market. But, improving taste and meeting preferences may gain more attention from the medium-grain rice consumer.

Medium-grain rice is consumed as table rice mainly by Asians as a favorable staple with average per capita consumption by Asian Americans of 70-100 lbs per year. For the past several years, the price of medium-grain rice has increased due to increasing demand from a growing population and an unstable market situation. In the consumer market, price per

cent protein and less than 20 percent amylose type starch in the grain.

Objectives

The objectives of this study are i) to evaluate varietal and management effects on production of medium-grain rice, and ii) to improve consumer-specific taste preferences for medium-grain rice grown in Southeast Missouri. The delta region of Missouri has good quality water in sufficient amounts for enhanced rice production. Developing varieties and management practices designed to consistently produce high yields of preferred medium-grain rice is the foundation for market branding to give identity and proof of consistent quality of Missouri rice. This will be critical for expanded markets of Asian consumers and put emphasis on quality to meet the developing taste of the U.S. population.

Results

Major medium-grain rice varieties will be cultivated with various nitrogen application rates to control the properties of rice grain quality. Chemical characterization of rice grains and milling quality will be evaluated. Tests of taste preference of cooked medium-grained rice will be performed with approximately 300 consumers, many of Asian origin, who value taste when purchasing rice at the market. Δ

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