Rice Diet

DR. WON KYO JUNG

PORTAGEVILLE, MO.

It's not surprising that rice grain is the staple food of nearly one-half of the world population. And the people who subsist on it, as much as 80 to 90 % of their daily food intake is in the form of rice. Although American tends to prefer animal protein at meals, most of the rest of the world obtains its required protein from grains. The protein content of rice surpasses the others in its amino acid structure. Rice, with its eight essential amino acids, permits the cells in our bodies to most efficiently use the protein they receive. Rice offers a form of protein that is easily assimilated by the body, and your protein equilibrium remains at a normal level though you are not ingesting much protein. Americans are coming to agree that our traditional diet contains too much protein, especially animal protein. This excess puts a strain on the kidneys and accelerates our metabolic rate, reducing the life span of some cells. An unpleasant consequence-premature aging-can result. Moreover, recent studies indicate that animal protein, particularly beef, can contribute to cancerous conditions. The body's chief food need is carbohydrates than either protein or fat. Thus, carbohydrates furnish about 94% of the calories. Most American eat a substantial amount of their carbohydrate calories in the form of sugar, a simple carbohydrate, as opposed to grain, fruits, and vegetables, which are complex carbohydrates and better for you. Today, medical professionals routinely advise their patients that life- style changes are necessary in order to conquer obesity, heart attack, and strokes. In fact is, in many instances, they can be completely avoided. All that most of us have to do is replace the "normal" foods we eat with the healthy-producing foods recommended in the Rice diet.

Improving eating quality of MO produced medium-grain rice

Many Asians consume large amounts of medium-grain rice as their primary staple food. Even the average Asian American consumes 70-100 lbs per year of medium-grain table rice. Gradually, demand around the world for high quality medium-grain rice has increased due to greater interests in healthy diets, food safety and taste preferences. Because of taste preference by consumers, the price of high quality Japonica type medium-grain rice in the grocery store is more than double that of Indica type. Currently, California produces most of the US domestic japonica type medium-grain rice. Some states in the mid-South, including Arkansas and Louisiana, have increased medium-grain rice production. It can also be produced in the Missouri boot heel. Increased total medium-grain rice production might be expected to decrease market prices, but a shift in region of production and effects of increased taste preference for Japonica type could allow increased production while maintaining the price benefits of these types. Taste preference of medium-grain rice is related to factors including genetic characteristics, crop and soil management techniques and post-harvest treatments linked to cooking processes. Quality japonica type medium-grain rice has less than 7% protein in the grain and the starch has less than 20% amylose content. Genetics of the variety is the major factor controlling grain quality. Nitrogen (N) application is essential for maintaining rice grain yield. It also increases milling quality and but increases protein content of the head rice.

We produced several medium-grain rice cultivars (Bengal, CL261, Jupiter and Neptune) with reduced N application practices. Reducing N by 30% reduced grain yield by 15%. Yet, grain quality was improved by having less than 6% grain protein and starch with less than 18% amylose content. A taste preference test involved over 270 consumers who regularly use medium-grain rice. Based on test categories (i.e., shape, smell, taste, stickiness, texture, and overall), the panel preferred Jupiter 8% higher than the reference rice variety, Nishiki, a commercial California variety. Taste accounted for 73% of the preference and price accounted for only 16%. Asians and other participants who eat rice more than five times a week could detect variety differences. The non-Asian group did not have a taste preference for a specific variety. The medium-grain rice varieties used in this research were usually ranked higher by participants in the in-home taste test than by the first panel test in a controlled test environment. Δ

DR. WON KYO JUNG: Rice Agronomist, University of Missouri

Table 3. Consumer taste preference teat result of Missouri grown quality improved medium-grain rice cultivar (n=272). Higher score represents more preferred and followed by the same letter do not differ among cultivars at the < 0.05 level.

	Rice taste testing property						
Cultivar	Shape	Smell	Taste	Stickiness	Texture	Overall	In-home
Bengel	3.51 b	3.45 b	3.37 b	3.39 a	3.36 b	3.39 b	3.81 a
CL261	3.08 c	3.45 b	3.22 b	3.21 b	3.14 c	3.13 c	3.16 b
Jupiter	3.78 a	3.74 a	3.77 a	3.44 a	3.64 a	3.76 a	4.10 a
Neptune	3.51 b	3.50 b	3.33 b	3.29 a	3.39 b	3.41 b	3.86 a
Nishiki*	3.78 a	3.55 b	3.41 b	3.24 a	3.44 ab	3.46 b	-
F-value	15.36	4.56	7.26	1.47	6.14	9.36	7.02
P	<0.0001	0.012	<0.0001	NS	<0.0001	<0.0001	0.0002

The results indicate production of high quality medium-grain rice appeals to Asians and to other every-day rice consumers. Further study on high quality rice cultivars and their management technologies are necessary improve grain quality, selling price and profit for rice producers.

Reference: Judy Moscovitz. 1986. The Rice Diet Report. G.P. Putnam's Sons.