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## Amaranth Seed

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Amaranth grain, corn and beans were probably the primary foods of the Aztecs. The Aztecs unfortunately practiced a religious observance in which they would mix blood from a human sacrifice with popped amaranth grain. They formed this into a statue of a war god, worshiped the statue, then ate it. The Conquistadors considered this a mockery of the eucharist (communion) so banned both the religion and cultivation of the grain in 1517. Amaranth has existed primarily as a wild weed since that time.

Amaranth has received much research attention during the past decade or so because: (1) it is more resistant to drought than corn, (2) it does fairly well in nutrient deficient soil, (3) it produces yields that compare favorably with corn and rice, (4) the grain is high in protein of unusually high quality, and (5) the leaves also have a good balance of proteins and may be cooked like spinach. Much of the research has been done by Rodale Press (publisher of Organic Gardening Magazine). They enlisted thousands of readers to do back yard experiments with different varieties of amaranth that they brought in from around the world. (This is a model for the kind of world-wide data we hope to gather as you folks report back to us on the performance of seeds that we sent to you.)

The protein is high in lysine, which accounts for 5% of total protein. It also has a very high "chemical score," a calculated value in which the higher numbers are the more perfect match for ideal human nutrition. For example, the chemical score for amaranth is 75-87, corn 44, wheat 57, sorghum 48, peanut 52, soybean 68, cow's milk 72. However, I have read results of feeding trials with rats where they did not do well at all on a corn/amaranth diet compared to corn and soybean. It appears that there are some anti-nutritional factors in raw amaranth that limits its use as a feed. Cooking improves this. Other drawbacks include small size of the seed that makes it difficult to thrash by machine and oxalic acid in the leaves that might tie up too much dietary calcium if eaten frequently in high amounts. We are working on a summary of nutritional and cultivation information that should be ready by the time your request gets to us.

When evaluating amaranth for your area, you should try more than one species and variety, because the variability is considerable. A few of those we grew this year looked absolutely horrible, while others were truly beautiful crops. *Amaranthus cruentus* and *A. hypochondriacus* are grown primarily for their grain and *A. tricolor* for its leaves. Leaves of any variety can be eaten, however. Doug and Ruth Welch are trying several of these varieties in Zaire. They just wrote that one variety that they received earlier from Rodale (what we call 81-039) grew 7 to 8 feet in composted

soil. "Most of our neighbors demanded seeds, so it has been distributed near and far. But they are using it as a vegetable." This was one of the most prolific grain types for us.

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