

New Life For OLD WHEAT

Ancient strains offer high-value markets and low-input production.

BY RAYLENE NICKEL

To say emmer wheat is long in the beard is an understatement. The ancient grain was one of the first crops domesticated and would likely be a relic were it not for farmers such as Blaine Schmaltz.

"I grow it [emmer] mainly for its benefit to soil and the rotation," says Schmaltz, a Rugby, North Dakota, organic farmer. "It may have health benefits for consumers, too." The upsurge in consumer interest in emmer and other ancient grains is giving the old wheat new life.

"Consumers are interested in ancient wheat because of its distinctive flavor and perceived health benefits," says researcher Elizabeth Dyck, who coordinates the New York-based Organic Growers' Research and Information-Sharing Network. She collaborated on a project to study the production and marketing of einkorn, emmer and spelt—three ancient strains of wheat not grown under a protective trademark.

PREMIUM PRICE. For small-scale organic producers, the dehulled ancient wheats offer a high-value product, selling for as much as \$4 to \$7 a pound when marketed directly to restaurants or consumers, Dyck says.

Milling considerations are one reason the industry moved away from these grains. Kernels encased in hard-to-thresh hulls require milling before they can be processed into food products.

These ancient wheats possess traits making them more tolerant than modern varieties of wheat to stressors such as drought, disease, weeds and soil salinity. This natural hardness is worth a lot to Schmaltz. While rye is often an organic farmer's weed-fighting crop of choice because of its competitive, allelopathic properties, Schmaltz relies on emmer, which he believes equals rye in its weed-fighting prowess. He's been growing emmer for at least 10 years.

Growing as many as 22 crops for direct seed sales to other farmers makes Schmaltz's rotation complex. Yet his rule of thumb for deciding where to plant emmer is simple: "I grow emmer in front of crops like peas and edible beans that need to be planted in clean fields because they don't compete well with weeds," he says. "The year after growing emmer, a field always stays cleaner."

Abundant straw production is another benefit. "Emmer stands taller than modern varieties of wheat and produces more straw," Schmaltz explains. Because of his semi-arid



Emmer wheat

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location, he values the straw residue for its soil-sheltering cover that enhances retention of soil moisture.

While emmer, einkorn and spelt may be grown in any region where cereal grains are grown, they tend to perform best in dry growing conditions with reduced fertility, states longtime ancient wheat researcher Steve Zwinger, of the North Dakota State University Carrington Research Extension Center. "When soil fertility is high, they don't do as well and tend to lodge," he says. The crops generally require fewer herbicides and less nitrogen; however, many of the ancient wheat acres currently occur in organic production systems.

Seed costs can be a bit higher—Zwinger pegs emmer and winter spelt seed at 75 cents to \$1 a pound. Einkorn seed stocks are still being built and can cost as much as \$10 per pound.

DEHULLING DRAWBACKS. The biggest hindrance to farmers' marketing of ancient wheats is a lack of infrastructure for getting these grains dehulled, Zwinger explains. "As a rule of thumb, of the three types of grain, spelt is the most easily dehulled; emmer is more strongly retained in the hull and susceptible to kernel breakage. Einkorn is difficult to dehull without damaging the seed."

Custom-dehulling facilities offer options for those with small loads. Large-scale dehullers are costly to purchase, but some farmers are designing their own.

The dehulling process results in considerable yield loss because of kernel breakage and retained hulls, particularly for emmer and einkorn. While field yield under unfertilized growing conditions may match that of modern varieties of wheat, net yield after dehulling is reduced. "My net yield is 40 to 50% of the original field yield," Schmaltz says.

Management of the ancient wheats within a rotation should resemble rotational management and planting windows used for common wheat, Zwinger says.

"Current data for spring types in North Dakota suggest a seeding rate of 100 pounds per acre for hulled emmer, einkorn and spelt," he says. Under conditions of high fertility and moisture, he suggests reducing the rate by 25 pounds to the acre for emmer and einkorn, which are both susceptible to lodging. Fertilizer applications should be reduced by 50% to 25% of that needed by common wheat, he says. ●