Long-term Grain Storage Requires Good Management

ity during extended storage flows into storage. Fines insect infestations if storing will require extra care and accumulate in the middle grain during warmer pormanagement, according to unless a functioning distrib- tions of the year. North Dakota State Univer- utor spreads them throughsity's grain storage expert. out the grain. Unloading "Grain that will be stored some grain from the center for an extended time needs of the bin will remove some moist conditions, usually to be good-quality grain," of the fines and help level above about 70 percent rel-NDSU Extension Service the grain in the bin. In addi- ative humidity, and warm agricultural engineer Ken tion, immature kernels have Hellevang says. "The outer a much shorter expected layer of a grain kernel is storage life. Grain test the pericarp, or seed coat, weight may be an indicator should be below the equiand provides protection for of maturity and storability. the kernel. If the pericarp is Assure that the storage facildamaged, the kernel is more ity is clean and insects are relative humidity. susceptible to mold growth not living in aeration ducts, and insect infestations. This under perforated floors, or 13.5 percent at 70 degrees reduces the expected storage in handling equipment or and 65 percent relative life of the grain."

Bins

Segregation based on size ual bin spray and a grain then the recommended stor-

Maintaining grain qual- and density occurs as grain protectant to repel potential debris around the facility. humidity, and about 15 per-Fumigate empty bins to kill cent at 50 degrees. If you Clean Grain and Storage insects under the floor or in can keep stored corn below aeration ducts if an infesta- 50 degrees, you can store it Clean the grain to remove tion occurred during the pre- at 15 percent moisture. Howbroken kernels and foreign vious year. Also, consider ever, if the temperature will material before storing it. applying an approved resid- be warmer than 50 degrees,

Reduce Mold Growth

Mold growth requires temperatures. To reduce the potential for mold growth. the grain moisture content librium moisture content (EMC), at 60 to 65 percent

The EMC of corn is about



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13.5 percent. EMC charts percent after 25 days and for various types of grain are cooled for winter storage but available on the internet.

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grain that has been stored chart. during the summer.

time (AST) is an estimate of taining grain quality," the life of the grain until it has deteriorated enough to reproduction is reduced affect grain quality. Grain below about 70 degrees, AST charts, such as those insects are dormant below in the publications section about 50 degrees, and insects of the NDSU grain drying are killed if grain is below and storage website (https:// 30 degrees for a few weeks." www.ag.ndsu.edu/graindrying), are available online.

time is dependent on the when about a 20-degree temgrain condition, moisture perature difference occurs content and temperature. between the grain and aver-Determining the amount of age outdoor temperature. storage life remaining will Therefore, the grain should assist with managing the be cooled with aeration when stored grain.

so if one-half of the storage and average outdoor temlife is used before the grain peratures. Cool the grain to has been dried and cooled, 20 to 30 degrees in northonly about half of the life is ern states and 40 degrees or available for the drier grain. cooler in southern states for For example, corn stored at winter storage. 20 percent moisture and 50 degrees has an AST of about

age moisture content is about 50 days. If it is dried to 15 warms to 70 degrees next summer, the AST at 15 percent moisture and 70 degrees Cool grain rapidly after is only about 60 days, rather harvest if it's going into than the 125 days shown in long-term storage. Also cool an allowable storage time

"Controlling grain tem-The allowable storage perature is critical for main-

Hellevang says. "Insect

Moisture migration increases the moisture con-The allowable storage tent at the top of the bin you have a 10- to 15-degree The AST is cumulative, difference between grain

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