

specify that non-genetically modified plants be used (e.g., organic contracts) or that a genetically modified plant must be used because it is the only way to obtain the desired bundle of qualities. But the two are not synonymous.

Critical Concerns of Identity Preserved Production

From a whole farm approach, identity preserved grain production will require a thorough rethinking of the production process. Appropriate varieties, expected yields, altered production risk and other factors will be agronomically important. From an economic viewpoint two factors are critical to understand: quality and relationship. IP grains require a higher standard of quality that the producer must be able to deliver. IP grains require that a relationship exist between the producer and the end user. The relationship may be formalized in contract as is frequently the case with food grade grain production or it may be informal as may be the case where a farmer grows a grain for a neighbor who feeds hogs.

Contractual Production

Producing IP grain without a contract exposes the producer to the possibility of not having a premium market available for the grain produced. Specialty grain grown without a contract can normally be sold in the commodity market but then does not reward the producer for additional expenses and management associated with production.

Contract relationships. Contracts imply relationships. Because contracts create relationships between producers, brokers and users, the importance of networks will increase. Buyers are building a network of farmers who have proven they can deliver high quality, identity preserved grain. Farmers seeking contracts will find that relationships open the door for opportunities. Longer term commitments between buyers and producers aid in insuring a consistent quality of necessary grain.

Producers typically grow IP grains under contract agreements with two types of markets. Most common is the production for a grain company that has developed or identified specialty markets. The elevator serves as a broker by securing a quantity of grain for delivery to someone needing that quantity and quality. Other producers actually contract with an end user company such as a feed manufacturer or livestock producer. In this case, the middleman broker is not used and the farmer is able to capture all of the benefit for the additional work of growing and marketing the grain.

Leasing arrangements can influence contractual production of specialty grains. The contract specifications may require certain land management practices of which the landowner needs to be aware. The landowner must also agree to let harvested grain go under the contract, essentially limiting some marketing options.

Contract specifications. Contract specifications are written to insure the quality of the grain delivered to the purchaser. Depending on the end use, contracts can be extensive, defining many of the production, harvest and storage activities, or loose, dealing more with pricing and only the most critical production practices.

Some IP grains are based on production activities. For example, organic grain standards currently under consideration by the USDA stipulate that food labeled organic must be produced on land which has had no chemical inputs (whether fertilizer or pesticide) for a specified number of years, no genetically modified organisms (seeds) and no municipal waste.

Contracts to market IP grains usually specify the planting of a limited number of varieties, typically available from several seed companies. This list narrows the choice of seeds that the farmer can use but the farmer is still responsible for choosing the seed best suited for his growing environment and management abilities. Planting

an inappropriate variety simply to obtain a contract may reduce yield sufficiently to erode all price benefits of IP grains. In addition to acceptable varieties, contracts generally specify the delivery date and location, grading standards, and pricing mechanisms. IP grain contracts specify the number of acres to be grown and stipulate that all production from those acres be delivered. Some contracts may specify what chemicals can be used and when they can be applied. Additional contract terms call for independent third party record keeping, field inspections and lab testing services. Some contracts provide a grower certification page where the grower keeps extensive records of all activities performed on a field and after harvest. Many contracts give the contractor the right to enter into and inspect the fields where specialty grains are being grown.

Higher prices (premiums) paid for IP grains are intended to compensate growers for the added management required and any reduced yield resulting from production of varieties having particular traits.

Contract types. The most stringent contract type is called a bailment contract. In a bailment contract both parties agree that the company underwriting the contract solely owns the seed, growing crops, grain, tissues or molecular components and the harvested crop. The farmer is granted the right to plant the proprietary seed to produce the grain but receives no other rights typically granted when buying seed. Unused seed is returned, liens on the growing crop are forbidden, and all harvested grain must be delivered to the supplier of the seed.

The two major types of contracts written for IP grains are buyers call and harvest delivery. Harvest delivery contracts specify that the producer is to deliver the grain at or very near to the harvest date. Buyers call contracts specify that the grower is to store the grain for a certain period of time. The contract specifies the expected delivery date but has provisions for the grower to hold it a longer time should the buyer not want it delivered at the specified time.

Pricing and grower compensation. Occasionally the contract will establish the final cost of the delivered grain but typically it specifies a premium schedule over market price for grain delivered. This leaves many of the marketing decisions to the grower. The grower has the ability to sell a futures contract or purchase a put option on the expected production. The premium paid by the contractor is in addition to any price the farmer is able to establish for the crop.

Pricing mechanisms vary depending on the intended end use of the grain. Some IP grains receive a set premium if they meet a minimum standard. White corn and STS soybeans are such contracts. As long as a sufficiently pure product is provided, the premium is paid. Other contracts have a sliding premium schedule. As the quality of the desired end product increases so does the premium. High oil corn uses a sliding premium schedule where corn with more than 6% oil receives an increasing premium for each 0.1% increase in oil. Discounts can also be applied for grain that does not meet all of the quality standards.

The buyers call contracts generally have a higher premium than harvest delivery contracts because they are more convenient to the buyer. The higher premium is intended to compensate the grower for the cost of storing the grain until the later delivery date. If the grower has to store the grain beyond the contract delivery date, a grain storage fee is paid for each additional day of storage. Many contracts specify 0.1¢ per bushel per day (approximately 3¢ per month) for storing grain beyond the agreed upon delivery date.

Quality

Because the idea behind IP grains is to deliver a grain of a specified quality, the farmer must have the managerial ability to produce grain in a way that creates and preserves quality. Many quality enhancing (from the viewpoint of the end user) production activities are specified in the contract; others are left to the discretion of the farmer.

IP by definition preserves identity. In addition to the grain qualities being preserved, the identity of the farmer producing the grain will also be easier to preserve. Farmers with the ability to produce and deliver quality grains will have greater opportunities to enter into specialty grain production than those with previous quality problems.

Production quality. Quality control of specialty grains occurs continuously along the production process. Contracts specify that the receipts for seed and chemicals be provided to the contractor to insure that the conditions of variety and chemical use were followed.

Cross-pollination from nearby field crops can compromise the purity of the harvested specialty crop. Methods used to maintain purity include growing specialty crops in fields isolated or upwind of prevailing winds from other fields growing the same crop, separating and selling as commodity grain the grain harvested from end rows. Scouting before harvest, especially around the edges of fields, can help to identify the extent of cross pollination.

Harvest quality. Growers of specialty crops often receive specific harvest instructions in an effort to maintain the processing quality of the crop. Soybeans must be harvested in such a way as to prevent splits and moisture/dust on the bean. Because soybeans contaminated with corn do not meet contract specifications, growers must eliminate any corn standing in the field before harvest. Harvesting weedy patches separately helps prevent staining the seed coat.

Waiting later in the day than normal to begin harvest (e.g., until the dew has burned off) may be important to maintain the cleanliness and glossiness of the seed. Such waiting increases yield risk. Some soybean contracts require that growers do not begin harvest until the soybeans are at or below 13% moisture.

Other harvest precautions to maintain harvest purity include: Running the combine long enough to thoroughly empty the hopper and legs of other varieties. (Even after doing this some contracts may specify that a certain distance be harvested and sold as commodity grain to further insure a clean auger and bin in the combine.)

Physically cleaning out the hopper and auger before beginning with the specialty harvest.

Carefully cleaning trucks and storage bins.

Storage. Two major concerns with storing specialty grains are maintaining the identity/purity of the grain and preserving its quality. Though most IP growers are not required to have special storage facilities, modern facilities can aid IP grain production.

When planning the number and size of bins necessary to store IP grain, use the same procedure you would use to determine how to store entirely different crops — such as corn and soybeans. A variety of large and small bins provides flexibility.

Any link in the storage system where a significant amount of grain can remain after cleanout is a potential problem requiring attention. Poorly designed augers, dump pits and other transfer points are common causes of contaminated grain. When designing a grain handling system for identity preserved grain, minimize transfer points and install cleanout panels to allow easy access to “lost” grain.

Special handling equipment such as bucket elevators and conveyors may help minimize cross- contamination of ordinary grain with high value grain, but they also require proper cleanout procedures. Large volume augers operated at slow speed can minimize damage to grain.

Thoroughly cleaning bins between seasons minimizes the risk of quality deterioration from storage molds and insects.

Depending on the end use of the grain, storage may be strictly regulated. When growing high oil corn, the main concern is getting the grain to the processor within the contract specifications of breaks, foreign matter, etc. However, if growing food grade crops, especially soybeans, the storage requirements can be very great.

Storage requirements can include:

- Use aeration.
- Don't use insecticide in the storage bin.
- Make sure there is no mold at the top or along the sides of the bin when unloading the bin.
- Vacuum off any mold prior to unloading.
- Leave any beans stuck to the wall or floor to prevent contamination of the good beans.
- Leave beans smelling of mold or "sour beans."
- Label the bins with the specific crop being stored and the date it was filled.

It is a good idea to keep a record of where the crop was grown, what inputs were used and where it is stored.

Delivered grain quality. Upon delivery of the grain, visual and laboratory testing of the grain may be conducted to grade and insure the quality of the grain. Quality standards for IP grains are typically defined more stringently than for commodity grains. Premiums will be based on the purity and quality of the grain at delivery.

Commercial storage costs about 3¢ per bushel per month. Elevators that store grain for that price assume all of the risk of the grain quality deteriorating. Farmers with buyers call contracts assume the risk of the grain losing quality. Because quality is the key element in identity preserved grains, the farmer needs to be confident that he can maintain the quality for that storage price.