BELMOND, Iowa -- One foggy morning last week, farmer Dave Nelson pulled his 18-wheel truck up to a grain elevator near here and, with a scowl on his rugged, bearded face, delivered 980 bushels of last fall's corn crop.

He was grimacing because demand for corn to make ethanol has pushed the grain's price to just under $4 a bushel -- but Mr. Nelson had agreed about a year ago to sell his 2006 crop for $2.60 a bushel. "It seemed like a good price at the time," he says. But this year, "I'm not dinking around."

Across the plains, farmers are placing big bets on where the price of corn will go in 2007. They are preparing to plant more corn than they have in decades, spending more on seed and fertilizer, investing in new equipment and buying crop insurance against the possibility of bad weather. Some are signing futures contracts to lock in prices now; some are holding off in the hope that prices will climb higher. Mr. Nelson is doing a little of both.

The planning is an annual rite of spring, but this year it has huge implications for farmers in a market driven by a boom in ethanol, the corn-based biofuel that has surged in popularity partly because of rising gasoline prices and partly because President Bush declared that the U.S. is addicted to oil.

Plant too much corn, and you could help depress prices; plant too little, and you could miss a windfall. Buy too much insurance -- the price of which is also rising -- and risk shrinking your profit margin; buy too little and risk taking a hit if there is a soggy spring or a summer drought. With corn prices at near-record levels, it would be tough for growers to lose -- but they could easily fail to take advantage of what could be a once-in-a-lifetime opportunity.

And for the growing number of farmers who have also invested in ethanol production -- like Mr. Nelson -- the calculus is even more complex, as they aim for a corn price that maximizes profits for both businesses. (The boom has also sent Deere & Co. shares soaring.)

Early estimates are that farmers will plant 87 million acres of corn, up from 78 million last year. That would put acreage at its most since the end of World War II. Along with growers, hedge funds and other speculators are watching for tomorrow's U.S. Department of Agriculture estimate of this year's corn plantings.

At Marv's Market Street Grill & Bar in Gowrie, Iowa, near Belmond, farmers are treating the report like college basketball's March Madness. Over hamburgers with some farmers, seed salesman Dave Lemke tosses out different estimates for how large the crop will be. "I think we'll see 70% corn and 30% soybeans," he says. "Last year it was 55% corn and 45% soybeans."

Down the street at Security Savings Bank, corn grower Vance Bauer and bank President Steven Lane debate what might happen. "I wish I knew," Mr. Bauer sighs. The 43-year-old farmer has decided against increasing his corn acreage. "I don't want to get caught up in the euphoria," he says, lest it backfire and push prices down. Mr. Bauer also owns a small stake in an ethanol plant, though, which stands to benefit if corn prices fall.

The game is even more complicated for Mr. Nelson, 53 years old, who, in addition to being a lifelong farmer, is chairman of Global Ethanol LLC, which runs ethanol plants in Iowa and Michigan. As Mr. Nelson was delivering that load of corn last week, his cellphone rang. Someone wanted to discuss a contract related to a new ethanol plant Mr. Nelson hopes to build in Belmond.

"It's planting season now," he snapped. "The contract has to wait till June."

Mr. Nelson first climbed on a tractor on his father's farm near Belmond when he was 6, and started farming full time at 22. Looking for ways to add value to his grain, Mr. Nelson in the late 1990s began investigating ethanol. He decided it had potential after seeing early plants turn profits in South Dakota and Minnesota.

He helped form Midwest Grain Processors Cooperative and crisscrossed the region raising money at meetings in bars, church basements and community halls. By 2002, the co-op had built a 50-million-gallon-a-year ethanol plant in Lakota, Iowa, doubling its capacity three years later. The co-op later joined with a Michigan company, Great Lakes Ethanol, to build a plant near Riga, Mich.

Last year, Midwest Grain sold a 60% interest to Global Ethanol, an Australian company. Mr. Nelson handled the negotiations and now oversees the company's two plants. Instead of spending every day in jeans on his 5,000-acre farm, he is donning business suits and traveling to attend board meetings, woo investors and lobby Washington lawmakers. It's all "quite exciting," he says, but "by the end of March, I'm ready to be home in time to get ready to plant."
As a corn grower, he wants to fetch the highest possible price. But as an ethanol producer, he knows high corn prices can trim his profit margins. So, like a lot of farmers who have invested in ethanol, he is straddling both markets, trying to make as much money as possible in each. Ethanol, Mr. Nelson says, is the "perfect hedge."

When he was marketing his grain last spring, he had no idea corn would shoot to $4, he says. But that is just part of being a farmer, he adds. "There's always another bushel to raise or another bushel to sell. You can't get attached to your corn."

This year, Mr. Nelson has decided to plant 70% corn and 30% soybeans, up from 60% corn last year. Though he has yet to plant a seed, he already has sold half of his corn crop -- 300,000 bushels -- at about $3.40 a bushel through cash contracts with local grain elevators and feed mills, because he worried that tomorrow's USDA report could indicate a corn glut and drive prices down as much as a dollar. But he has held back the rest of his crop in case prices jump higher.

At the same time, Mr. Nelson is juggling corn-growing costs that have risen to about $200 an acre -- not including land -- up from about $100 three years ago, he says. That is partly because his nitrogen-fertilizer costs have doubled to about $500 a ton from a few years ago. He plans to stick with part old-fashioned chicken manure and part chemical fertilizers.

With prices so volatile, crop insurance is more important than ever. A drought probably would further inflate corn prices by cutting the supply, but farmers whose crops were damaged wouldn't have corn to sell. They would still have to deliver grain to meet their contracts, though, meaning they would have to buy it themselves on the cash market as prices were rising, then sell it at the lower price they agreed to.

Insurance can mitigate that risk, but premiums have risen sharply in the past year as higher prices have made the crop more valuable. This year, Mr. Nelson is spending about $18 an acre on insurance, up from $12 last year, and insuring fewer acres.

All the higher costs are why some farmers are taking a more cautious approach. "I know these are high [corn] prices," Mr. Bauer says. "But maybe they're not that good if inputs go up."

Tomorrow morning, Mr. Nelson plans to rise at the usual 4 a.m., grab a cup of coffee and watch the USDA report unfold on a computer in an equipment shed on his farm. While he says he is "pretty much set" on his plan for this planting season, a lifetime of coaxing crops from the ground has taught Mr. Nelson there is no end to the uncertainty: "We have four months of weather to deal with after that."

Write to Lauren Etter at lauren.etter@wsj.com

Corrections & Amplifications

According to the U.S. Department of Agriculture, U.S. corn production in 2006 was 10.53 billion bushels. The graphic that accompanied this article incorrectly labeled corn-production figures in millions of bushels instead of billions.