U.S. farmers are expected to plant every spare acre they can yet still may be unable to replenish low grain supplies.

Analysts estimate farmers come spring must sow an additional 10 million acres—the largest U.S planting in a decade—to maintain adequate supplies of crops from corn to oats. The U.S. Department of Agriculture last week forecast supplies as a percentage of usage would fall to 15-year lows for corn and more than 40-year lows for soybeans. The agency also cut its forecast for some exporters such as Argentina and Australia.

Farmers have an incentive to sow as many acres as they can. The supply outlook has pushed crop prices to multiyear highs, with corn trading at about $6.40 a bushel and soybeans trading at more than $14 a bushel.

Some analysts expect the strong prices will ease demand somewhat, yet ramping up planting will be critical to ease global-supply concerns.

To reach the 327 million acres of planted cropland that is being talked about, farmers will need favorable weather to sow the maximum amount of acreage and increase "double cropping," or the planting of an acre twice in the same year. Prices also may need to climb further to give farmers an incentive to plant marginal lands.

"I can't come up with a solution of where all these acres are going to come from, unless we start putting hay acres under plow," said Dan Basse, president of Chicago research firm AgResource, meaning acres currently used to grow hay would have to be cultivated for crops like corn or soybeans.

Yet grain prices are "screaming" for more acres, which will push farmers to convert pastures used for animal grazing to cropland and consider planting even in questionable weather conditions, Iowa State University agricultural economist Chad Hart said.

He said North and South Dakota have roughly three million acres that could be put into production. Another three million acres are available in a region from southern Illinois to Arkansas.

In the meantime, a pullback in demand could help ease concerns over end-of-season inventories. Meat producers are likely to cut back on grain usage as high prices cut into margins. Export demand could weaken as well. Yet demand from producers of corn-based ethanol is expected to remain high as crude-oil prices above $90 a barrel drive more blending of the fuel additive than required under federal mandate.