

Biopharmaceutical FARMING

BIOPHARMACEUTICAL FARMING



**TECHNOLOGY
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The Report

Using plants to produce biopharmaceuticals is being touted as the next generation manufacturing process for monoclonal antibodies and recombinant proteins. Growing biopharmaceuticals in plants is expected to help solve some of the current production problems facing developers. However, as with most new technologies, there are many issues to be addressed.

Plant-based biopharmaceutical manufacturing has the potential to produce large quantities of recombinant proteins or monoclonal antibodies at a lower cost than traditional mammalian cell culture. The use of plants can also avoid transmitting animal diseases by eliminating the need to extract the drugs from animals or to use animal proteins in cell culture. Also it is envisioned that it will be quicker and less expensive to scale-up (increase acreage) of a plant-based system than to build a sterile biological manufacturing facility.

However, the use of plants and especially crop plants, raises concerns about maintaining the safety of the food supply. Gene flow through pollen drift from the altered plants to plants intended for the food market is one potential transfer mechanism. Unintentional mixing during harvesting, processing, and transport is also of concern. While the proteins may be harmless if accidentally ingested, there is a major concern surrounding public reaction if contamination occurs. In addition to the safety of the human food supply, there are the possible ecological effects on animals and insects that may ingest the plants producing these proteins.

Technology Catalysts has addressed the issues raised by plant-based biopharmaceutical manufacturing in its new report *Biopharmaceutical Farming*. The report will be of benefit to companies involved in plant biotechnology and biopharmaceutical development and production. The report provides companies with insight into the issues facing the development of this technology and an understanding of the opportunities and threats for the production of biopharmaceuticals.

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