

The American farmer has always embraced new technologies in becoming successful stewards of America's farmlands. With the ever-increasing importance of renewable energy the American farmer remains on the front line of global sustainability by using emerging technologies.

Wind turbines are now popping up all over America's rural landscape. Although these large turbines create valuable clean energy, they do pose challenges to farmers. One such challenge is to the potato farmer who depends on aerial spraying to protect and maintain their crops. Because of the vast network of wind turbines, aerial spraying will no longer be an option. This is why autonomous drone technology will be needed to sustain large potato production. Using this technology, low flying drones will be able to spray fields with pinpoint accuracy allowing for less ground disturbance to the growing crops. Autonomous drones will be a safe, green energy solution to the farmer providing better yields and continued stewardship of America's farmland.

The number of wind turbines in one rural Michigan county is rapidly increasing. Recently, there is talk of a potential 50,000 acres of turbines throughout 11 different townships in Montcalm County. With the decrease in available farmland, and space required for turbines, drones can help potato farmers in a variety of ways without losing precious potato ground to wind turbines. Co-ops would also greatly benefit from these autonomous drones. One local co-op in Montcalm County is Chief Wabasis Potato Growers. This co-op is made up of four well-established farms in Montcalm County. These farms would all share the cost and reward that comes from using this innovative technology. The proposed invention of autonomous drones that are able to aerial spray potatoes with precision can also scan the field giving the farmer accurate data on their crop. These drones can alert them of any potential problems such as weather damage, disease, etc... allowing farmers to quickly address the situation.

These drones are not just for spraying chemicals, they can also spray for diseases like Equine Encephalitis and target the infected areas instead of having crop dusters spraying larger areas that may not need to be sprayed. These low flying autonomous drones can safely fly very low below the turbine blades and air flow.

While drone technology does currently exist, the invention of autonomous battery powered spray drones that provide low level spraying around vast areas of wind turbines does not exist. This innovation would allow farmers to reap a full harvest without the damage from soil compaction. It also promotes a green energy way of aerial spraying since drones do not use fuel like typical crop dusters.

The American farmer has always known the importance of innovative technologies on the farm. With the increased need to not only feed our planet, but to do so environmentally friendly, farmers have a new set of challenges ahead. With the help of autonomous drone technology, farmers will be able to keep increasing their farm yields and still encourage green energy like wind turbines on America's farmland.