Food By Students, For Students:
Extending Food Production into the School Year

Introduction
The mission of the University of Michigan Campus Farm is to provide educational opportunities about sustainable food to the Michigan community, particularly students. However, it’s difficult to do that when the school year doesn’t line up with the growing season. So we decided to change the growing season!

We’ve designed a hoop house of 30’ x 72’ to be installed outside the existing deer fence of the Campus Farm. It will serve as a step towards expansion of the Farm as well as shutters on the end walls which are controlled by a thermostat to maintain temperatures when people are absent from the farm.

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Hoophouses are built in order to control the environment for growing crops, using different features. A single layer of poly plastic acts as a greenhouse cover, holding in heat. A double layer of poly can be inflated to act as an insulating barrier, keeping the house warmer in the most extreme environments. Different features help to cool down the house in the warmer months, like end wall vents or ridge vents at the top of the house. In our design we chose sides that roll up, which will encourage passive air circulation near the ground, as well as shutters on the end walls.

Hoop House Overview
We’ve designed a hoop house of 30’ x 72’ to be installed outside the existing deer fence of the Campus Farm. It will serve as a step towards expansion of the Farm as well as shutters on the end walls which are controlled by a thermostat to maintain temperatures when people are absent from the farm.

Throughout this summer the Campus Farm interns, along with help from supervisors and design specialists, have been determining what we need, want, and would like to see in our hoop house design. We believe that we have finally determined our final product, a hoop house that you’ll be able to visit on the Campus Farm next year. Continue reading to learn more about the details of our chosen design, and the reasoning behind much of it.

The Campus Farm is surrounded by a tall deer fence, which has been very successful in limiting the destruction of crops due to foraging animals. In order to maximize this protected space, we plan to construct our hoop house outside of the fence and to the south. The map to the right depicts our Visioning and Master Plan for the farm, which uses the hoop house as a focal point for education and events at the farm. This will be particularly useful during the school year when we would like to host classes and interested students, perhaps even opportunities to support student research on the farm.

Features
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While discussing our options, we aimed to utilize our funding from Planet Blue to its full potential. The poly layer for the hoop house roof is guaranteed for four years, after which it will likely need replacing. End walls can be constructed from wood or metal, but wood needs to be replaced every five years or so due to rot. In the end, we chose metal end walls covered with a woven poly as the best use of funds.

Hoop house overview
The underlying structure of the house was carefully chosen to fit the needs of the farm. We consider the gothic style arch a better option than a rounded roof, particularly for reducing heavy snow loads in the event of a harsh winter storm. The structure is engineered according to International Building Code, in accordance with the guidelines set by the Michigan Exterior Elements Design Review Committee, and is rated for high wind and snow loads to reduce potential hazards from severe weather.

Background
Hoophouses are common ways for gardeners and small farms to extend their growing season into the winter and to start plants in the ground while there’s still snow on the ground outside. In 2015 the Planet Blue Student Innovation Fund gave the Campus Farm a grant for the first hoop house for food production on the Michigan campus!

Conclusion
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