



GROWING IN HOOPHOUSES

Build Local Food Economies!

Other Resources

- Tomm Becker @ Nifty Hoops
734-845-0079—tomm.becker@niftyhoops.com
- The Greenhouse and Hoophouse Grower's Handbook by Andrew Mefferd
- The Winter Harvest Handbook by Eliot Coleman
- The Farmer to Farmer podcast featuring many Jedi Michigan growers including Brian Bates and Adam Montri
- MSU Student Organic Farm Organic Farmer Training Program
- **Organize!** We are gifted with a collaborative and cooperative farming community. Work with our neighbors in this collective project.

Food is the foundation of our lives. It is the best way for us to invest in the world we envision, and to connect to the people and places around us.

Hoophouses and high tunnels allow the networks we create for food production to continue year-round, and make our farms more resilient. They help our local food economies to form a solid foundation for local economies in general.



GROWING IN HOOPS—SITE & STRUCTURE

Choosing your site

- **Flat** — not necessarily level. Avoid “rolling” ground
- **Well-drained** — this is valuable real estate. Remedy any drainage issues *before* the build
- **Full sun** — shadows are much longer in the winter
- **Orientation** — ideally east/west for broadside exposure to noon sun

Choosing your structure

- First, **what is your vision** for this project? What do you want the hoophouse to do for you? This will influence width, length, and your site.
- **What features do you need?** Automated venting? Tractor access? Roll-up sides? Aesthetics?
- **Budget** — also consider materials and labor inputs relative to size. A longer structure (of the same width) will cost less per square foot
- **How will it be built?** DIY? Community build? Professional install?
- **Build it strong!** We have been having more severe weather events. More money for a stronger structure now is relatively little compared to all the other investments you put into the space over time
- **Insure it.** Weather can come that nothing will withstand. Insure your investment against “acts of God”

Preparing your space

- **Grade it** — installers can work with some variability in topography, and grading is expensive, but not grading can be even more expensive.
- **Till it up**, or tarp it well in advance — *much* easier to break sod before the structure is installed. *Consider the effects of tillage on weed population.*
- **Work it** deeply with a chisel plow, subsoiler or by hand with a broadfork to break up plow pan
- **Amend**— its much easier to get a dump truck’s worth of compost on your site *before* the hoop is built



GROWING IN HOOPS—PLANNING

Crop selection

- **Nearly every crop grows better in a hoophouse**, but this is *valuable* real estate! Leverage the structure to make your best crops even more profitable
- **What does a hoophouse bring?** Relief from rain, wind and pests — which profitable crops benefit most from these?
- **Space efficiency is key**—Forego the broccoli and plant lettuce instead
- **Summer crops:** tomatoes, peppers, eggplant, cucumber, lettuce!
- **Winter crops:** spinach, kale, collards, chard, salad mix, lettuce, radish, turnip, cilantro!
- **Variety selection:** important, and season dependent. Some variety suggestions in two pages...

Your season

- We need year-round local food economies, but do *you* want to farm year round?
- Harnessing the structure for summer and “shoulder season” production is still a great plan
- Consider your cash flow and seasonal markets

Use of space

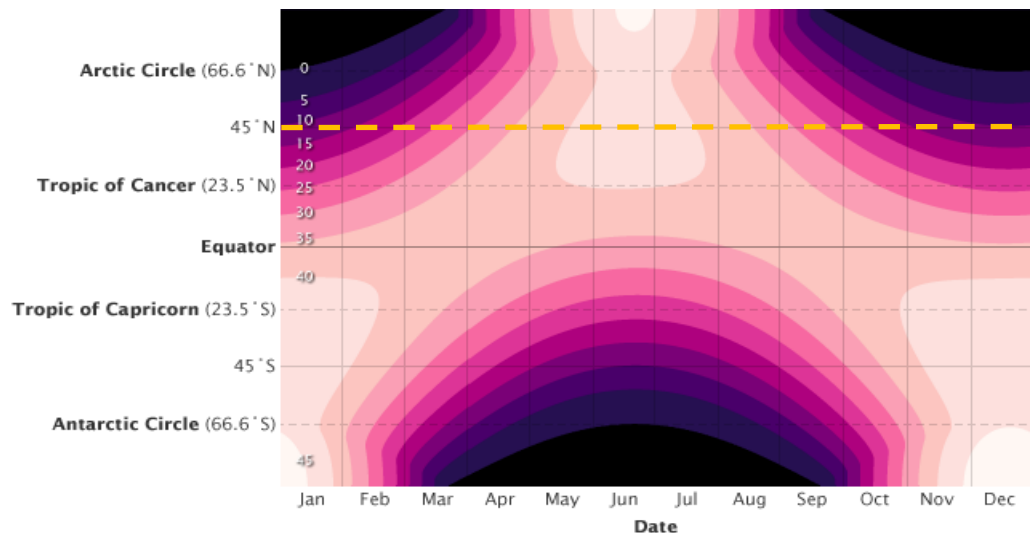
- **The Edge Effect**—you lose heat from the edges of your hoophouse. This is your least valuable space. Put your paths there, not in the middle of your hoop!
- **Maximize your growing days**—flip your beds quickly! Keep cash crops growing!
- **Bed orientation**, bed & path size planning to maximize growing area



GROWING IN HOOPS—WINTER GROWING



- **Timing is everything!** Even in a hoophouse, plants stop growing in December and January, because there is simply not enough solar energy reaching our latitude — everything you will harvest during this “Persephone period” must be grown to maturity beforehand. (see planting sched. for lower MI on next page)
- **Moderating temperature swings**—on a sunny morning it can heat up too fast in your hoophouse. If the extremities of your plants thaw out before the stems, they can die! Learn the tricks and when to use them



- **Conserving heat**—Your soil is your ballast for heat. Moist soil holds more heat than dry. Button up your hoop and use row covers to keep this heat where you need it, instead of allowing it to radiate off into space.
- **The magic trick of freeze tolerance** — plants are able to concentrate sugars in their cells, which acts as an antifreeze. They need adequate moisture to do this!
- **Competition from pathogens**—mildews love it humid and wet, which it will be if you keep row covers on while maintaining adequate moisture for your plants. Learn when and how to shed moisture
- **Competition from animals**—mice and voles will love this winter paradise and your sweet vegetables. Cut-worms can be a real threat. Learn how to keep the vegetables you grow.

GROWING IN HOOPS—WINTER GROWING CONTINUED

Crop selection for winter planting, varieties, dates, spacing

Crop	Suggested Varieties	Planting Date (lower MI)	Spacing (in row X between row)	Notes
Carrots	Sugarsnax, Napoli	Aug 1, Feb 5	2" x 8"	Will bolt in February
Beets	Merlin, Chioggia	Aug 1, Feb 5	2" x 8"	
Kale	Winterbor, Redbor, Dino	Aug 15, Feb 15	12" x 18"	Will bolt in February
Collards	Champion, Flash	Aug 15, Feb 15	12" x 18"	Will bolt in February
Swiss Chard	Bright Lights	Aug 15, Feb 15	8" x 18"	Harvest hard before January
Komatsuna / Choi	Summerfest	Sep 15, Feb 15	8" x 12"	Needs slow thawing
Lettuce Heads	Galactic, Skyphos, Salanova	Sep 15, Feb 15	8" x 12"	Red lettuces do better
Turnip	Hakurei	Oct 1, Feb 15	1" x 10"	Harvest before January
Radish	Rover, D'Avignon	Oct 1, Feb 15	1" x 5"	Harvest before January
Spinach	Winter bloomsdale, space	Oct 1, Feb 15	2" x 10"	Needs cool temps to germ
Brassica salad	Red russian kale, mizuna, red giant	Oct 1-31, Feb 5	0.5" x 2.5"	Red Russian is strongest
Lettuce salad		Oct 1-23, Feb 5	0.5" x 2.5"	Red varieties do better
Cilantro	Calypso	Sep 22, Feb 5	1" x 2.5"	
Tomato		April 15	24" x 40"	Be ready to protect them!
Peppers		April 15	12" x 24"	Be ready to protect them!
Eggplant		April 15	18" x 24"	Be ready to protect them!
Cucumber		April 15	24" x 40"	Trellis
Zucchini		April 15	24" x 40"	Careful of early mildew



GROWING IN HOOPS—SUMMER GROWING



- **This is your hot house.** Your fruiting vegetables (tomatoes, peppers, cucumbers, etc) will love this space!)
- **This is shelter** for your wind-sensitive cut flowers or moisture-sensitive crops like tomatoes
- **Fertility maintenance** is key for long-season crops like tomatoes. Supplementing mid-season and fertigation are both good options. pH balance with sulfur.
- **Lettuces and other greens** will like it as well, but you'll need use hydro-cooling or use shade cloth when its hot
- **Irrigation** — a fixed overhead irrigation system is excellent for leafy and densely-planted crops. Drip is the way to go for fruiting crops and widely spaced greens. *Both* in certain situations
- **Competition from pathogens** is usually less of a concern in hoophouses, but watch out for early powdery mildew in your cucurbits, and be sure you have adequate air circulation for dense tomato plantings
- **Competition from animals** can be fierce in all weather. Know what to watch for and how to exclude or combat hornworms in your tomatoes, CPBs in your eggplants, cucumber beetles on your cucurbits, deer & ground-hogs from your whole farm.
- **Propagation / seeding** needs its own dedicated space with good ventilation in summer and heating for winter transplant production. A hoophouse is an ideal place for this. In-home transplant production can be gnarly!
- **Wash & pack** — the hoophouse can be an ideal washing and packing space, with a few modifications
- **Diversity versus specialization** — its fun to grow a great diversity of crops, but it can also be very difficult, and you sacrifice the efficiencies of specialization
- **Tooling up strategically** — in general, a good rule is to prioritize in this order: soil prep, planting, cultivation, then harvest.