

Year Around (Winter) Gardening



Successful Winter Harvest

- Cold-hardy vegetables
 - Over 30+ hardy vegetables
- Succession planting
 - Time from sowing to maturity triples in unheated house
- Protected cultivation
 - 6 Mil greenhouse film
 - Lightweight Agribon-19 fabric
 - 85% light transmission



What to Grow?

- Carrots (7/15-8/15)
 - "Napoli", "Kyoto Red"
- Turnips (7/15-9/15)
 - "Hakurei"
- Onions (8/1-10/15)
 - "White Spear"
- Beets (7/1-9/1)
 - "Bull's Blood," "Red Ace"
- Spinach (8/1-10/15)
 - "Red Kitten," "Space," "Gazelle"
- Miscellaneous
 - "Micheli Cabbage," "Mache," "Minutina"

- Chard (7/1-9/10)
 - "Fordhook Giant", "Bright Lights"
- Lettuce (7/21-10/1)
 - Oakleaf: "Red Salad Bowl." "Tango," "Red Sails"
 - Romaine: "Rouge d'Hiver"
 - Arugula: "Astro"
- Asian Greens (8/1-10/15)
 - "Tatsoi," Pac Choi - "Joi Choi," "Mizuna," "Tokyo Bekana," "Red Komatsuna"
- Kale (7/15-9/1)
 - "Scarlet," "Winterbor," "Blue Curled Scotch," "Red Winter"

How to Have a Continual Harvest

- Succession Planting
- 2 week intervals
- 1-2 rows of each variety
- Beginning mid-late July
- Ending mid-October
(for winter production)



Construction

Prepare the Beds



- Plan size (20x12)
- Walkways (12 inches)
- Haul in soil
- Create beds
- Amend soil

Wooden Base/Frame



20 Foot Rebar — 2 x 10 Foot Grey Conduit



Supporting the Hoops



Top Support



Metal conduit clamp with self-tapping screws

6 Feet Tall

Front Door/Ventilation



Finished Frame



Covering — Ends First



Attaching the Plastic



Rubber Inner Tubes



4" x 4" Squares

1" Diameter x 3" long black water pipe. Rubber creates holding friction, protects plastic.



Back End — "Half-Moon" Vent

(Letting heat out is worse than cold in winter growing.)



Finishing the Plastic

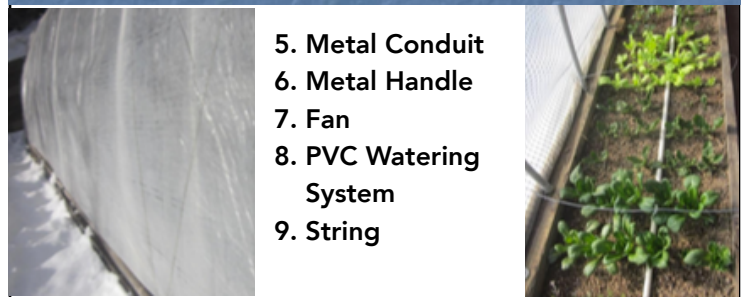


20 Foot white PVC Pipe 90 degree Framing Bracket

Improvements



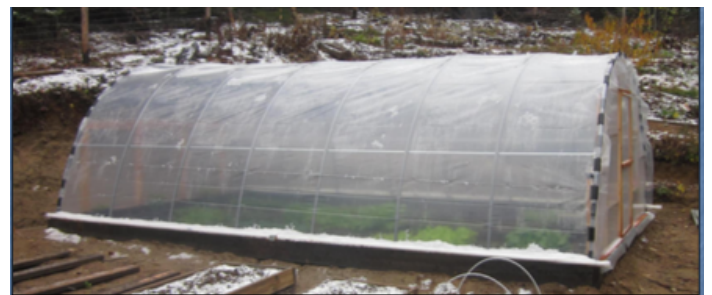
1. Netting
2. Automatic Vent
3. Support Beam
4. Enclosed Beds



5. Metal Conduit
6. Metal Handle
7. Fan
8. PVC Watering System
9. String

Winter Protection

Cover Before Outside Freezing Temperatures



Must be completely covered before freezing temps outside. (Zone 5 = mid to late October)
Plastic Cover = 1.5 Zones South

November

- Cease Watering
 - Low evaporation
 - High water tables
- Add floating row covers
 - Before freezing temperatures inside hoop house
 - Capture daytime heat, warm soil, raise nighttime temps



Creating "Wickets"

(Install Before Soil Freezes)



#9 Wire



30" wide x 23" legs



Every 3 feet (no drooping)
12" above plants to prevent frost damage

Inner Floating Row Covers AG-19 Fabric - 85% Light Filter



Light weight vs heavy weight fabric
(2 degrees warmer, 50% light, more soil freeze)

Inner Floating Row Covers

Agibon AG-19 - 10x50 ft

Under cover = 1.5 zones south (Zone 8)



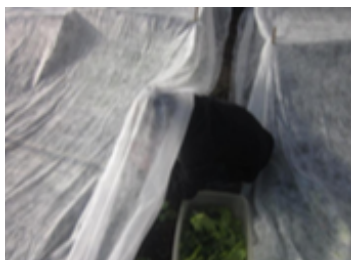
Late November - Deep Frost



Outdoor Temp 21.6°F



Indoor Temp 53°F



Harvest between 10 AM - 3 PM
Morning = frozen covers, frozen plants.
Above 32°F
Negative temps = double cover

December



Remove snow - let in light



38.3°F vs 52°F



Sample January Temperatures

Below Zero = Double Cover

Outside

-2.6°F

0°F

10°F

25°F

28°F

Under Fabric

23.5°F

25°F

35°F

65°F

70°F

Source: *The Winter Harvest Handbook*
Eliot Coleman 2009

Month by Month

January

(Begin sowing indoors)



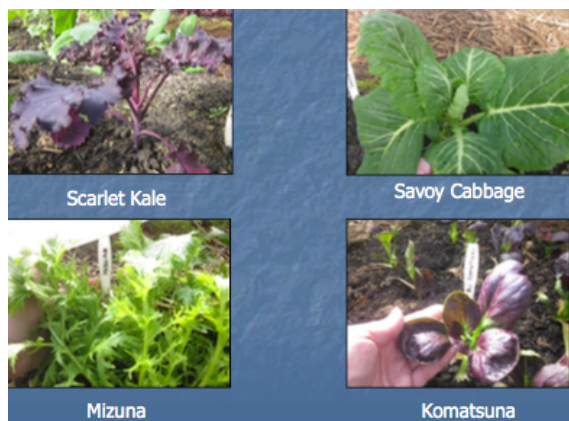
When to Sow Seeds for Transplants to Hoop House

(Sow in Flats/Indoors)

- Celery, Lettuce/Spinach, Sweet Potato Slips: mid January
- Eggplant: early February
- Peppers, Tomatoes: mid/late February
- Onion (seed), Peas, Beets: mid March
- Cabbage: late March
- Cauliflower, Broccoli: mid/late March
- Bush Beans: mid/late April (or direct sow)
- Cucumber, all Squash: early/mid May

February

(Continue Sowing Indoors)



Remove Row Covers



When temps under fabric reach 70°F
Late February to mid March - begin watering

March (Final Indoor Sowing)



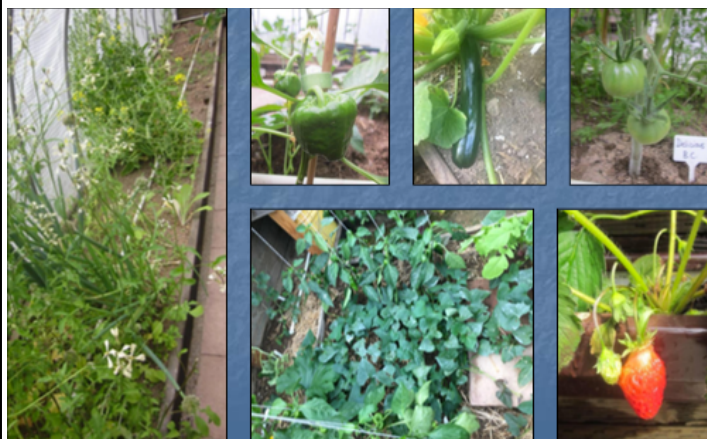
April — May (Harvest, Succession Planting, Transplants Out)



April — May (Sow in Pots in Hoop House)



June — Harvest/Clean Up



June - Saving Seed

- Summer - Fall
- Save 1-2 plants
- Collect Seed
- Book:
Seed to Seed
by Suzanne
Ashworth



July — 1st Winter Planting (Group Planting)



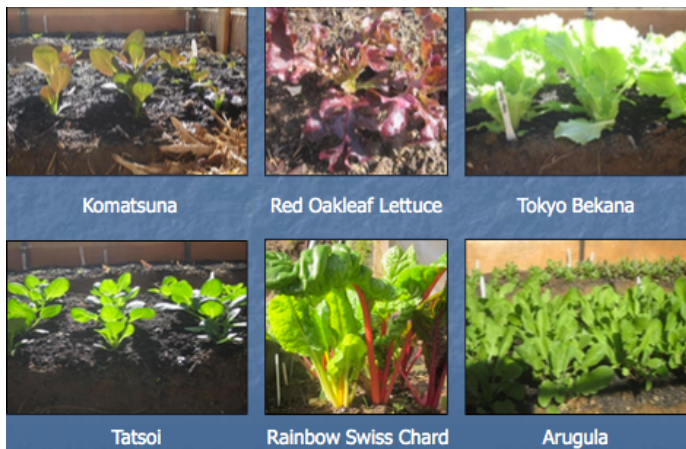
August — 2nd/3rd Planting



September — 4th/5th Planting



October — Final Planting



November



December - Christmas Harvest



Are the Plants Growing?

Fall to Spring Comparison



Improvise



Photos courtesy of online public domain



Cattle Panels



Photo courtesy of online public domain

Photo courtesy of online public domain

Approximate Cost: \$500

- Greenhouse Plastic – \$200
- Lumber – \$100
- Agribon Row Cover Fabric – \$30
- Seeds – \$60
- Rebar – \$50
- Gray Conduit – \$40
- Metal Conduit – \$20
- Hardware (screws/clips/nails) – \$20
- Soil Amendment/Compost – \$20

