

SEASON EXTENSION



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WHAT WE ARE GOING TO DISCUSS

- ✘ Having the Correct Mindset
- ✘ Where do I put my High Tunnel?
- ✘ Structures Used for Season Extension
- ✘ Building your high tunnel

THE CORRECT MINDSET

- ✘ As a vegetable grower:
 - + We can produce healthy and tasteful fruits and vegetables throughout the growing season
 - + Our purpose today, is discuss simple, low costs external inputs that will allow us to achieve the same results “on the back side of the calendar”

THE CORRECT MINDSET

- ✘ We can achieve this by picking select vegetables and root crops that are “cold hardy”
- ✘ You will not be able to produce tomatoes in February without external heat and supplemental light!

THE CORRECT MINDSET

- ✘ Three key Elements need to be present when approaching four season gardening:
 - + Cold-Hardy Vegetables
 - + Succession Planting
 - + Protected Cultivation

THE CORRECT MINDSET

✘ Cold Hardy Veggies:

- + These are simply vegetables that tolerate cold temperatures.
- + These vegetables often have lower light requirements than traditional warm season crops
- + We will discuss these vegetables in details later in the presentation

THE CORRECT MINDSET

✘ Succession Planting

- + This refers to sowing vegetables more than once during a season so that you can continually harvest throughout the winter
- + It helps if you begin to think about this time of year as the 'second spring'

THE CORRECT MINDSET

- ✘ Planting Dates are important in the fall!!
 - + If you miss the planting date of a crop in the spring... not going to hurt you
 - + If you do not sow vegetables at the correct time in the fall, you might not harvest that particular crop!

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Sunrise: 7:09am Sunset: 5:00pm Day length: 9h 51m	2 Sunrise: 7:10am Sunset: 5:00pm Day length: 9h 50m	3 Sunrise: 7:11am Sunset: 5:00pm Day length: 9h 49m	4 Sunrise: 7:12am Sunset: 5:00pm Day length: 9h 48m	5 Sunrise: 7:13am Sunset: 5:00pm Day length: 9h 47m	6 Sunrise: 7:14am Sunset: 5:00pm Full Moon: 6:28am Day length: 9h 46m
7 Sunrise: 7:14am Sunset: 5:00pm Day length: 9h 45m	8 Sunrise: 7:15am Sunset: 5:00pm Day length: 9h 44m	9 Sunrise: 7:16am Sunset: 5:00pm Day length: 9h 44m	10 Sunrise: 7:17am Sunset: 5:00pm Day length: 9h 43m	11 Sunrise: 7:18am Sunset: 5:00pm Day length: 9h 42m	12 Sunrise: 7:18am Sunset: 5:00pm Day length: 9h 42m	13 Sunrise: 7:19am Sunset: 5:00pm Day length: 9h 41m
14 Sunrise: 7:20am Sunset: 5:01pm Last Qtr: 6:52am Day length: 9h 41m	15 Sunrise: 7:20am Sunset: 5:01pm Day length: 9h 40m	16 Sunrise: 7:21am Sunset: 5:01pm Day length: 9h 40m	17 Sunrise: 7:22am Sunset: 5:01pm Day length: 9h 40m	18 Sunrise: 7:22am Sunset: 5:02pm Day length: 9h 39m	19 Sunrise: 7:23am Sunset: 5:02pm Day length: 9h 39m	20 Sunrise: 7:24am Sunset: 5:03pm Day length: 9h 39m
21 Sunrise: 7:24am Sunset: 5:03pm New Moon: 7:37pm Day length: 9h 39m	22 Sunrise: 7:25am Sunset: 5:04pm Day length: 9h 39m	23 Sunrise: 7:25am Sunset: 5:04pm Day length: 9h 39m	24 Sunrise: 7:26am Sunset: 5:05pm Day length: 9h 39m	25 Sunrise: 7:26am Sunset: 5:05pm Day length: 9h 39m	26 Sunrise: 7:26am Sunset: 5:06pm Day length: 9h 39m	27 Sunrise: 7:27am Sunset: 5:06pm Day length: 9h 40m
28 Sunrise: 7:27am Sunset: 5:07pm First Qtr: 12:33pm Day length: 9h 40m	29 Sunrise: 7:27am Sunset: 5:08pm Day length: 9h 40m	30 Sunrise: 7:28am Sunset: 5:08pm Day length: 9h 41m	31 Sunrise: 7:28am Sunset: 5:09pm Day length: 9h 41m			

THE CORRECT MINDSET

✘ Protected Cultivation:

- + This refers to vegetables growing under cover
- + Traditionally, winter vegetables can survive outdoors under a blanket of snow
- + You cannot depend on snow
- + Honestly, who wants to work in the snow?

WHAT WE ARE GOING TO DISCUSS

- ✘ ~~Having the Correct Mindset~~
- ✘ Where do I put my High Tunnel?
- ✘ Structures Used for Season Extension
- ✘ Building your high tunnel

WHERE DO I PUT MY HIGH TUNNEL?

- ✘ Choosing a site is extremely important
 - + However, there is no site that is perfect!
 - + Manage your expectations
 - + You can improve almost any location for plant growth!

WHERE DO I PUT MY HIGH TUNNEL?

× Purpose

- + What are you going to use this high tunnel for?
- + You should keep some simple things in mind:
 - × **Location**- The high tunnel should be easily accessible
 - × **Water**- All vegetables are comprised primarily of water...
So where is that water going to come from?
 - × **Electricity** – Some applications require electric.
Example: Automatic Curtains/Lights

WHERE DO I PUT MY HIGH TUNNEL?

- ✘ Which way should it face (orientation)?
- ✘ What is around the area (shade)?
- ✘ What condition is the soil profile in (nutrients)?
- ✘ Is the site known to have drainage issues?

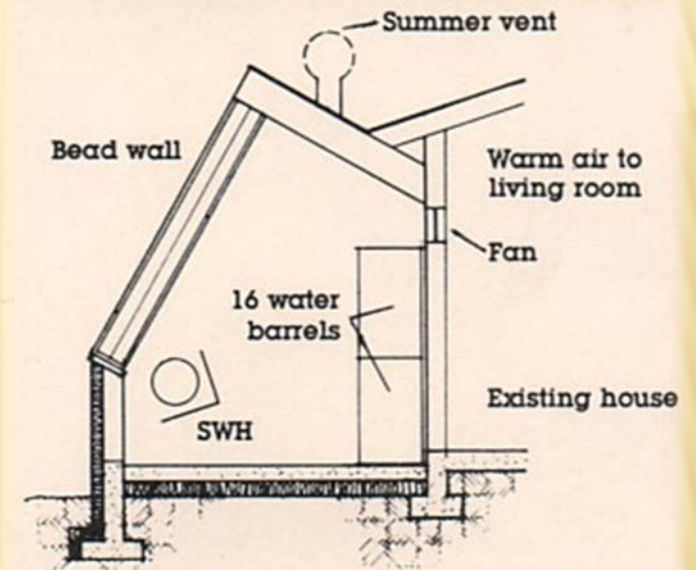
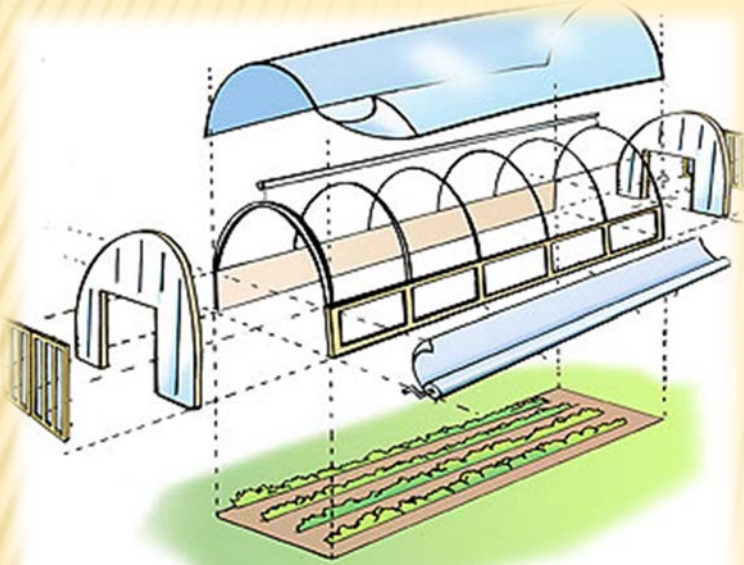
WHERE DO I PUT MY HIGH TUNNEL?

- ✘ Airflow- Direction of prevailing winds
- ✘ Windbreaks- Can save you time and money!

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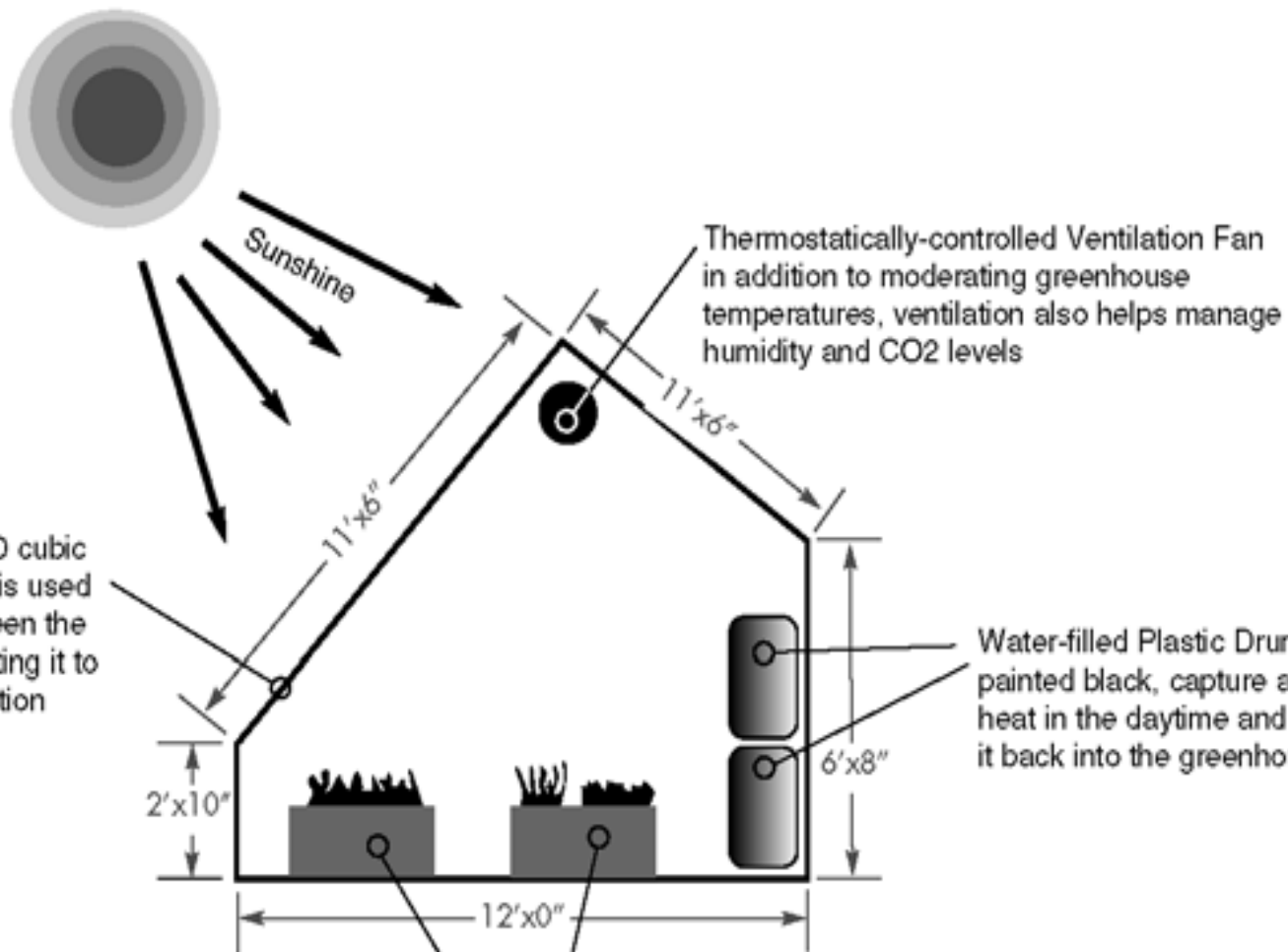
STRUCTURES USED FOR SEASON EXTENSION



STRUCTURES USED FOR SEASON EXTENSION

✘ Solar Heated Greenhouse

- + Best suited for personal use
- + Cheap and easy to build
- + It works!
- + We have a working model at the Southwest Research Center!



6-mil greenhouse plastic
 A small electric blower (60 cubic feet per minute capacity) is used to pump outside air between the two layers of plastic, inflating it to provide rigidity and insulation

Thermostatically-controlled Ventilation Fan in addition to moderating greenhouse temperatures, ventilation also helps manage humidity and CO2 levels

Water-filled Plastic Drums painted black, capture and store solar heat in the daytime and slowly release it back into the greenhouse at night

Raised Plant Beds create a deep, well-drained, fertile growing medium, and also absorb more solar energy and warm up better than would low, flat beds, and are much easier to maintain and water than individually-potted plants.

STRUCTURES USED FOR SEASON EXTENSION

- ✘ Building Measures 12x24'
- ✘ 11' high at its peak
- ✘ South facing side is sloped at a 45 degree angle
- ✘ This slope is resting on a 34" "hip board"
- ✘ Covered with double layer clear 6 mil plastic
- ✘ 60 Cubic feet per minute electric blower
- ✘ Total Growing area is roughly 123 square feet

STRUCTURES USED FOR SEASON EXTENSION

× High Tunnels

- + A structure used to produce edible goods that is un-heated
- + You can have power to the structure
- + We have several individuals who have supplemental heating to produce certain crops

STRUCTURES USED FOR SEASON EXTENSION

- × Season Extension

- × Provide Shade

STRUCTURES USED FOR SEASON EXTENSION

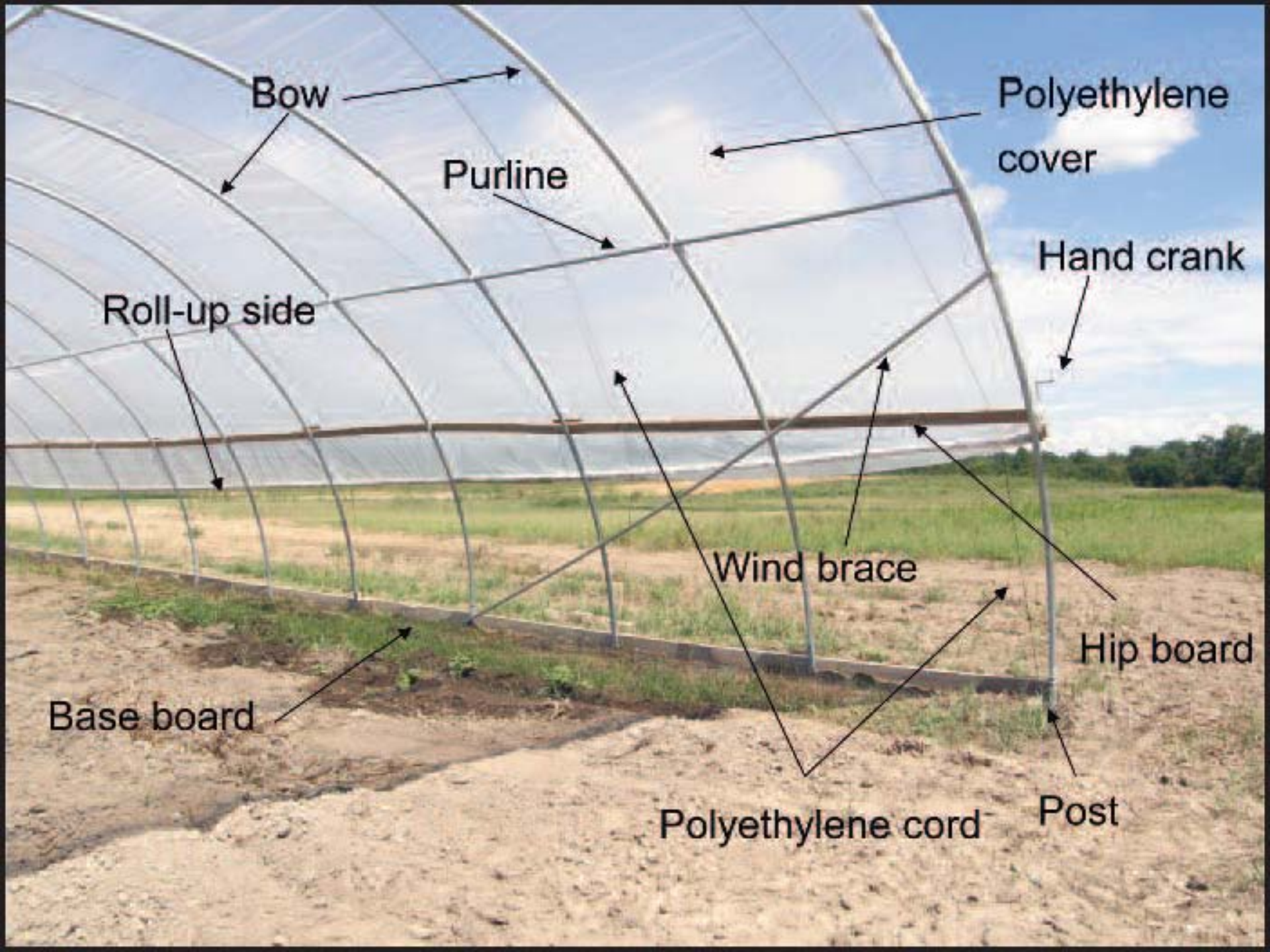
× Season Extension

- + Having an area covered by a sheet or sheets of plastic will produce a warmer environment that is easier for the owner to harvest and work in.
- + This will keep plants “growing” longer and allow an individual to transplant or direct seeder earlier in the spring

STRUCTURES USED FOR SEASON EXTENSION

✘ Provide Shade

- + Throughout the summer months, the heating effect produced by the plastic can work against you!
- + High tunnels are easy to cover with 'shade cloth' and this can reduce ambient air temperature throughout the greenhouse.



Bow

Polyethylene cover

Purline

Hand crank

Roll-up side

Wind brace

Hip board

Base board

Polyethylene cord

Post

STRUCTURES USED FOR SEASON EXTENSION

✘ Row Cover

- + The general term “row cover” refers to spun bonded fabrics made out of polypropylene or polyester.
- + The lightest of these can be loosely laid on top of plants to help with pest pressure or protect young transplants
- + The heavier row covers offer additional benefits by adding as much as 8 degrees to the ambient air beneath the cover itself (where your plants are).

STRUCTURES USED FOR SEASON EXTENSION

✘ Floating Row Cover



STRUCTURES USED FOR SEASON EXTENSION

✘ Caterpillar Low Tunnel



STRUCTURES USED FOR SEASON EXTENSION

✘ Row Covers

- + There are row covers made out of plastic
- + These covers are generally slitted down the sides to allow air exchange
- + Careful management is needed when using this type of row cover
- + Temperatures can quickly reach 20-30F higher than the surrounding air!

STRUCTURES USED FOR SEASON EXTENSION

✘ www.greenhouseworld.com



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BUILDING YOUR HIGH TUNNEL

- ✘ When you buy a manufactured high tunnel...
Think Lincoln log set for adults!!
- ✘ What is required
 - + Patience
 - + Proper Tools
 - + Patience
 - + Good (clear) instructions
 - + Patience

RESOURCES

✘ Succession Planting Interval Charts

- + http://www.johnnyseeds.com/t-succession_planting_interval_chart_vegetables.aspx?source=SuccessionPlantingOverview_062013

Recommended Crops for Succession Planting

- + http://www.johnnyseeds.com/t-successionplanting.aspx?source=Webarticle_SuccessionPlantingMethods_052013_Guidelinestxt

✘ Finding day length Time for your area

- + <http://www.sunrisesunset.com/>

CONTACT INFO

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