

Sustainable Crop Production

Sustainable Small Farming & Ranching



Skagit
County

WASHINGTON STATE UNIVERSITY
EXTENSION



CULTIVATING  SUCCESS™
sustainable small farms education

Reading and Discussion Questions

1. When planning out for a season, what are the important things to know about each crop? Come up with 3-6 example components.
2. What are some of the major benefits of successful crop rotation?
3. What 3 things do you need to know before planning your crop rotation?
4. What are some management techniques for compiling and storing information year to year?
5. Byczynski and Coleman offer two different approaches to crop planning. Which technique will be most effective for you?

Managing Crops

- Water
- Climate
- Soil
- Pests
- Rotations and cover crops
- Tillage
- Harvest/Post Harvest
- Equipment

PNW Vegetable production guides

<https://horticulture.oregonstate.edu/vegetable-production-guides>

Water

- Quantity available
 - Average annual rainfall
 - Seasonal Averages
 - Alternative water sources – volume, timing
- Crop requirements – specific to crop
 - Overall crop moisture needs
 - Drought tolerance – root depth, leaf structure
 - Critical water times – fruit set, root development
 - Consistency important for most

Climate

Climate Projections

<https://climatetoolbox.org/tool/future-crop-suitability>

Growing degree days

Measurement of temperatures above 50 degrees accumulated throughout the season that serve as an indicator for:

- Fruit ripening
- Insect emergence
- Cropping viability

(Market Farming Success, pg 160)

Historic Growing Degree Days on WSU AgWeatherNet

Working around the Climate

- Appropriate varieties/cultivars
- Cultural practices
 - Raised beds
 - Transplants instead of direct seeding
- Season extension tools
 - Greenhouses
 - Tunnels
 - Cold frames
 - Row covers
 - Plastic mulches

Hoop Houses / Greenhouses



Floating Row Covers



Plastic Mulches



Crop Rotations

- Numerous ecological and other benefits to the farm
- Consider plant characteristics to help you develop a plan
 - Plant families
 - Moisture requirements
 - Rooting depths
 - Nitrogen fixing plants
 - Warm season - cool season crops
 - Cover crops/green manures

Cover Crops and Green manures



- Keep it covered:
 - Prevent erosion
 - Shade out weeds
 - Prevent freezing and thawing of soils
 - Hosts for beneficial insects
- Incorporate it:
 - Add nitrogen
 - Increase organic matter

[UCSC Farm Video: Cover Crops](#)

Use of Cover Crops/Green Manures

- Identify your problem
 - N source, fight weeds, soil builder, erosion
- Identify when you could fit them into your rotations
 - late summer, winter, spring ?
- Identify the right type of cover crop
 - Depending on use, what does well



Use of Cover Crops

N Source	Soil Builder	Erosion fighter	Loosen subsoil	Weed fighter	Pest fighter
Winter peas	Rye	Rye	Sorghum cross	Rye	Rye
Hairy Vetch	Clover	Barley	Clover	Wheat	Sorghum
	Barley		Daikon	Barley	Mustard
	Buck-wheat		Radish		
			Sunflower		

Reduced Tillage in Organic Vegetable Production



Harvesting considerations

- When and how to harvest
Wholesale Success
- Labor requirements
- Proper equipment and process
- Sorting/packing
- Storage



Crop production summary

- Management of sustainable cropping systems relies on planning ahead. Things to consider in your plan include:
 - Planting methods
 - Crop rotation plan
 - Use of cover crops/green manure
 - Tillage strategies
 - Timing of harvest and post-harvest handling procedures

When planning for a season, what are the important things to know about each crop?

- Broccoli
- Strawberries
- Potatoes
- Lettuce
- Carrots
- Onions

Some things to Consider:

- Botanical Classification
- Direct Seeded/ Transplant
- Days to Maturity
- Irrigation Requirements
- Common Pests
- Nutrient Needs
- Harvesting Considerations
- Place in Crop Rotation
- Market Opportunities

Group Activity: Enterprises and Resource Evaluation

Pair up and discuss your 3 ideas for enterprises and give reasoning based on your resource evaluation

As a listener, give feedback

- Which enterprise struck you as most feasible initially?
- Which enterprise was your partner most excited about?
- Which enterprise do you think there is a market for?
- Based on the resource evaluation, is there an enterprise that you think would be good for your partner to look into?

Next Week

Today's Assignment

Whole Farm Plan Section

Crop Production Plan- seeding, planting, irrigation, harvest plan

Reading for discussion next week

- Market Farming Success Chapter 6
- Espanol- 9-15

Upcoming Events

- Tilth Conference – November 8-10th Yakima Wa