The Center for Agroecology & Sustainable Food Systems

University of California

4.5 CSA Crop Planning

Lecture Outline: CSA Crop Planning

A. The Need for Crop Planning in CSA Production

1. The complexity of a diverse mixed fruit and vegetable operation – As many CSA operations provide a great diversity of produce in each share throughout the season, a crop plan becomes an essential planning tool for creating and maintaining efficiency and timeliness of cropping in order to meet harvest goals

B. Basic Considerations in Developing and Implementing a Crop Plan for a CSA Operation

1. The types of crops to be grown and their life cycles
   a. Storable, single planting/single harvest crops – These crops can be either directly sown or transplanted. They are often planted en masse on one planting date and are later harvested en masse once they have reached maturity.
      - Examples: potatoes, garlic, onions, winter squash, dry beans, determinate variety tomatoes
   b. Non-storable, single or few plantings/extended harvest crops – These crops, once they reach maturity, continue to yield over an extended period of time
      - Examples: strawberries, summer squash, green/red peppers, basil, cucumbers, fresh beans, chard, kale, collards, indeterminate variety tomatoes. These crops can be either directly sown or transplanted.
   c. Transplanted, succession plantings/succession harvest crops – These crops have relatively short cropping cycles and small harvest windows, requiring regular and repeated sowings to ensure a continuous supply
      - Examples: lettuce, broccoli, cabbage, cauliflower, celery, leeks, Asian greens. These crops are most often transplanted.
   d. Direct sown succession plantings/succession harvest crops – Because they do not transplant well (due to a lack of fibrous roots), these tap-rooted crops are most often directly seeded. They have short cropping patterns and require regular and repeated sowings to ensure a continuously available harvest.
      - Examples: carrots, beets, spinach, cilantro, radishes, salad mix, arugula, bush beans, corn
2. Creating a sowing schedule to meet production goals
   a. Knott's Handbook for Vegetable Growers (see Resources, Unit 4.7) and seed catalogues are useful resources for crop planning information such as average yields, plant spacing, seeds per weight, and other specific production data
   b. Determining specific harvest goals for each crop to be grown – How much of each crop do you need to harvest and at what frequency?
      - Question: What is the quantity (in pounds, bunches, heads, etc.) of produce intended for each share and what is the frequency of harvest?
      - What is the total length (in weeks) of the harvest period in the climate in which you wish to grow produce?
      - What is the total number of plants required each week (if applicable) to supply this amount of produce at this frequency?
      - What is the total number of plants required for the season to supply this amount of produce at this frequency?

- Review Appendix 1: Calculating Weekly and Seasonal Harvest Goals, for example of first step in crop planning calculations

c. Calculating the number of plants per sowing needed to meet harvest goals
   - Determine: What is the average yield per plant? (Or, per 100 ft. row?)
   - Determine: How many plants (or 100 ft. rows) are necessary to meet defined harvest requirements?
   - Determine: How long (in days or weeks) does the crop hold in the ground before declining in quality?
   - Add 25% more for possible greenhouse problems. This is the total number of plants needed for each sowing.
   - Review Appendix 2: Calculating the Number of Plants Per Sowing Required to Meet Harvest Goals

c. Determine the specific sowings dates throughout the season that are needed to achieve the harvest goals you have established for each crop
   - How long from sowing does it take on average for the crop to reach a harvestable stage of maturity?
   - What is the very first sowing date in your climate?
   - Review Appendix 3: Determining First, Last, and Frequency of Sowing Dates

d. Calculating the number of sowings needed per season to meet specific harvest goals
   - Define the first sowing date and last harvest dates possible based on climate (i.e., soil and air temperatures). This will determine first distribution day and the availability of season extension.
   - Days to maturity: How many days (on average) are required for the crop to reach maturity?
   - Determine: How long (in days or weeks) does the crop hold in the ground before declining in quality?
   - Define timing/frequency of sowings: Each successive sowing date should allow for a small overlap in the peak harvest period to allow for continuous harvest of succession planting/succession harvest crops
   - What is the total number of sowings needed for each crop for the season?
   - Review Appendix 4: Calculating the Number of Sowings Required Per Season to Meet Specific Harvest Goals

e. Calculating seed costs
   - The total number of transplants/sowing x the number of seeds placed in each cell x total number of sowings in the season = total number of seed. Multiply total seed x price of seed/1,000 seeds.
   - Review Appendix 5: Calculating the Total Number of Transplants Required and Associated Seed Costs

C. Making and Using a Sowing Schedule (see Appendix 6: Field Sowings (Direct); and Appendix 7: Transplantings)

1. The role of a sowing schedule
   a. To keep an accurate schedule for sowing and transplanting to assure harvest goals are met
   b. Helps to track and confirm the completion of sowings
   c. Accurate records help to determine days to maturity in your specific region and season
   d. Serves as a record of crop performance, harvest quality and quantity for later trouble shooting
   e. Serves to record data in variety trials
2. Examples of crop plans and harvest schedule (See Appendix 8: Crop Plan for 100-Member CSA; Appendix 9: Sample of Acreage, Propagation Requirements, and Plant Schedule for Direct Market and CSA Crops; and Appendix 10: CSA Crop Harvest Schedule)

Community Supported Agriculture Crop Planning Exercise

INTRODUCTION

In the following exercise you will develop a simple crop plan for four crops that would be produced for a 100-member CSA operation. The exercise introduces you to the essential steps used in developing a crop plan for a working garden or small farm. Though the emphasis in this exercise is on crop planning for a CSA operation, the same general principles apply to other types of farming and gardening operations and the same steps are involved.

SCENARIO

You have a 100-member CSA operation located on the central coast of California. Your operation distributes weekly shares of vegetables from June 1 to November 1. Fifty of the members have full shares and the other 50 members have half shares. Harvest and pickup days occur two times each week, with half of the shares being distributed on Tuesdays and the other half on Fridays. You grow and supply your members with only four different and seasonally available items each week (one crop from each of the four categories described below). The climate is frost free from April 1 through December 1.

Select four of your favorite crops (one from each of the four categories described below) and work through the following steps in developing a crop plan to meet your production goals for the season. Please also answer the series of questions listed under "Other considerations" as part of this exercise.

The beds in your field are 300 feet long and are on 36-inch centers; in other words, the center of one bed is 36 inches from the center of the next bed. The spacing of plants in the beds varies from crop to crop, with some beds having two lines of crops and some having one line. Please consult your seed catalogues for recommended plant spacing, seeding rates, days to maturity and other relevant cultural information. A sample lettuce crop plan from the UCSC Farm's CSA program has been included for your review.

TYPES OF CROPS

1. **Storable, single planting/single harvest crops:** potatoes, garlic, onions, winter squash, determinate variety tomatoes. These crops can be either directly sown or transplanted.
2. **Non-storable, single or few plantings/extended harvest crops:** strawberries, summer squash, green/red peppers, basil, cucumbers, pole beans, chard, kale, collards, indeterminate variety tomatoes. These crops can be either directly sown or transplanted.
3. **Transplanted, succession plantings/succession harvest crops:** lettuce, broccoli, cabbage, cauliflower, celery, leeks, and Asian greens. These crops are most often transplanted.
4. **Direct sown succession plantings/succession harvest crops:** carrots, beets, spinach, cilantro, radishes, salad mix, arugula, bush beans, corn. These crops are most often directly seeded.

EXERCISE STEPS

1. **Determine your harvest outcome goals for each crop.** First set quantity-specific harvest goals for each of the four crops in terms of pounds, heads, or bunches.

- How much of each crop do you need to harvest? (e.g., two heads of 'Nancy butter-head' lettuce for each full share and one head for each half share)
- At what frequency do you need to harvest it? (e.g., each week)
- Over what period of time? (e.g., June 1–November 1)

EXAMPLE

Answering the questions above will allow you to calculate the number of plants needed per week and for the entire growing season.

Weekly needs: 2 heads lettuce x 50 full shares = 100 heads total for full shares; 1 head lettuce x 50 half shares = 50 heads total for half shares. Total for week (both full and half shares) = 150 harvestable* heads of lettuce per week.

*Add in a 25 percent cull rate for poor quality transplants, crop losses, and for unmarketable crop in the ground. The calculations for this would be the following:
150 x .25 = 38 additional plants
150 + 38 = 188 plants/week from which to harvest

Seasonal need: 188 heads/week x 22 weeks = 4,136 lettuce plants/season in the ground from which to harvest.

2. **Calculate numbers of plants per sowing needed to meet harvest goals.** Research the following questions for each crop in your CSA –

- What is the average yield per plant?
- How long does your crop hold in the ground before becoming overly mature and losing quality?
- How much will each plant yield?
- Add an additional 25 percent for greenhouse problems (e.g., poor germination, disease, etc).

EXAMPLE

A lettuce plant yields only one harvestable head of lettuce. On average, a mature lettuce crop in this coastal climate will retain its quality in the ground for approximately 14 days (weather dependent). This will allow you to harvest for two weeks from each succession of plantings. In order to create a small degree of overlap in mature lettuce, successive sowings at a slightly higher frequency of every 10 days are scheduled. Timely execution of this plan should provide an uninterrupted harvest of lettuce throughout the season.

With 188 lettuce plants needed each week (see above calculations) and with two weeks of harvest possible from each planting, the number of plants per sowing should include two weeks' worth of harvest. The following calculation would then apply: 2 x 188 = 376 plants/sowing. Add a 25% cull rate for poor germination, disease, etc. (376 x .25 = 94); 376 + 94 = 470 total plants needed per sowing. Standard propagation trays used for lettuce have 120 cells each. Therefore, four cell trays would be required for each sowing and would provide a total of (120 x 4) = 480 transplants/sowing.

3. **Determine the specific dates for the sowings throughout the entire season that are needed to achieve the harvest goals you have established for each crop.** Research the following question for each crop in your CSA program:

- How long from sowing does it take on average for the crop to reach a harvestable stage of maturity?

Then make a sowing schedule that includes direct sowings and greenhouse sowing dates and quantities. For greenhouse crops, also make a calendar of projected transplant dates. In scheduling greenhouse transplants, days to maturity projections must include both the time the crop spends in the greenhouse and the time in the ground. Keep in mind that the information on days to maturity provided in the catalogues are climate specific and often refer to either direct seeding methods or from transplants. Please read the information under "days to maturity" carefully in order to create an accurate sowing and harvesting schedule.

EXAMPLE

A lettuce crop requires (on average) 60 days from seed to maturity. To have a harvestable crop on your first harvest date of June 4, the first sowing would take place on April 4. (To standardize the process, lettuce sowings are scheduled for the 1st, 10th, and 20th of each month.) Therefore, the first sowing would take place on April 1. For the final harvests at the end of October/beginning of November, the last sowing date would be August. 20.

4. **Calculate the number of sowings needed per season to meet specific harvest goals.** Answer the following question for each crop in your CSA –

- What are your first and last harvest dates?
- How often will you sow the crop to meet your harvest goals?
- How many sowings are needed?

EXAMPLE

The first and last harvest dates are June 4 and November 2, respectively. Sowings taking place every 10 days. With three sowings/month, the total number of sowings needed per season is 15.

5. **Calculate amount and cost of seed needed to complete the sowings for each crop.** Research the following questions for each crop in your CSA –

- What are your total plant needs for the season?
- What is the average seed viability? (This will determine whether surplus seed may be used next year.)

EXAMPLE

To supply the needed 4,136 lettuce plants to select from throughout the growing season we determined the need for 480 transplants/sowing and a total of 15 sowings. Multiplying the number of transplants per sowing by the number of sowings per season will provide you with the number of seeds needed to implement your crop plan.

480 transplants/sowing x 15 sowings = 7,200 seeds/season. This number is then doubled as two seeds are sown into each cell when propagating. A total of 14,400 seeds are needed to produce the lettuce crop for your 100 CSA subscribers. (Seed viability for lettuce is two to three years under favorable conditions. Therefore surplus seed may be used in subsequent years.) Seed costs are $0.96/1,000 seeds. $0.96 x 14.4 = $13.80 + shipping and handling.

6. **Additional crop planning considerations**

- What equipment will you need to prepare the soil and develop the soil into beds?
- What equipment is necessary to directly sow or transplant these crops?
- What are the specific spacing requirements for each of the crops?
- Does the crop need to be thinned after germination? How will this be accomplished? How much time will this take?
- Do any of the crops have specific fertility or harvest requirements?
- What are the post-harvest requirements for the crops?
- What surface area of land would be required to produce all of the four crops?
- What type of irrigation will you use for each crop and why?

Appendix 1:
Calculating Weekly and Seasonal Harvest Goals

EXAMPLE 1

WEEKLY HARVEST REQUIREMENTS

- 2 heads lettuce x 50 full shares = 100 heads total for full shares
- 1 head lettuce x 50 half shares = 50 heads total for half shares
- Total for week (both full and half shares) = *150 high quality heads of lettuce per week

  *Note: Add in a 25% cull rate for poor quality transplants, crop losses, and for unmarketable crop in the ground

  Calculations: 150 x .25 = 38 additional plants. 150 + 38 = 188 plants/week from which to harvest the necessary 150 heads

SEASONAL HARVEST REQUIREMENTS

- Harvest period: June 1 – November 1 = 5 months
- 188 heads/week x 22 weeks = 4,136 lettuce plants/season in the ground from which to harvest

Appendix 2: Calculating the Number of Plants Per Sowing Required to Meet Harvest Goals

EXAMPLE

- One lettuce plant yields one head of lettuce
- On average, a mature lettuce crop in a cool coastal climate will retain its quality in the ground for 14 days
- This will allow you to harvest for two weeks from each succession of plantings
- In order to create a small degree of harvest overlap in mature lettuce successive sowings are scheduled at a frequency of 1x/10 days

CALCULATIONS

GIVEN:

- 188 lettuce plants are needed each week (see previous)
- Two weeks of harvest is possible from each planting
- The number of plants per sowing should therefore include two weeks' worth of harvest
- 2 x 188 = 376 plants/sowing
- Add in a 25% cull rate for poor germination, disease, etc.
- 376 x .25 = 94; 376 + 94 = 470 total plants needed per sowing
- Standard propagation trays used for lettuce have 120 cells each
- Four cell trays would therefore be required for each sowing, providing a total of (120 x 4) = 480 transplants/sowing

Appendix 3: Determining First, Last, and Frequency of Sowing Dates

EXAMPLE

Determining First and Last Sowing Dates

- A lettuce crop requires 60 days to mature from the date sown (on average)
- To have a mature crop on your first harvest date of June 4 for example, the first sowing would take place on April 4
- Therefore, the first sowing of lettuce would take place on April 1st (and every 10 days thereafter).The last sowing date would be August 20th for the final harvests at the beginning of November.

Determing Frequency of Sowings

- To standardize the process we have scheduled our lettuce sowings for 1st, 10th, and 20th of each month (3x/month)

Appendix 4: Calculating the Total Number of Sowings Required Per Season to Meet Specific Harvest Goals

EXAMPLE

- The first and last harvest dates for the CSA are June 4 and November 2, respectively
- Sowings take place every 10 days (the 1st, 10th, and 20th of each month)

CALCULATIONS

- 3 sowings/month x 5 month harvest season = 15 sowings total/season are required to meet harvest goals

Appendix 5: Calculating the Total Number of Transplants Required and Associated Seed Costs

EXAMPLE

Multiplying the number of transplants per sowing by the number of sowings per season will provide you with the number of transplant and seeds needed to implement your crop plan

CALCULATIONS:

- 480 transplants/sowing are needed (see Appendix 2)
- 15 sowings/season are required
- 480 x 15 = 7,200 transplants/season
- Two seeds are sown into each cell when propagating
- 2 x 7,200 = 14,400 seeds needed to produce the lettuce crop for your 100 CSA subscribers
- Seed costs are $0.96/1,000 seeds. $0.96 x 14.4 = $13.80 + shipping and handling

Appendix 6: Field Sowings (Direct)

YEAR:

DATE	FIELD	CROP/VARIETY	SEED CO.	HOLE #	# OF BEDS	# OF ROWS	# OF FEET	DAYS / GERMINATE	DAYS / MATURE	FIRST HARVEST	LAST HARVEST	TOTAL YIELD	NOTES

Appendix 7: Transplantings

YEAR:

DATE	FIELD	CROP / VARIETY	SEED CO.	HOLE #	# OF BEDS	# OF ROWS	# OF FEET	DAYS / GERMINATE	DAYS/ MATURE	FIRST HARVEST	LAST HARVEST	NOTES

Appendix 8: Crop Plan for 100-Member CSA

(50 full shares, 50 half shares)

CROP	FULL SHARE	HALF SHARE	TOTAL/WEEK	# PLANTS/ SOWING+25% x 2 WEEKS	SPACING	# ROW FEET/ SOWING	SOWING PERIOD EVERY ? DAYS
Basil	100 plants	50 plants	160	300	12in	150ft	20
Beans	100lb	50lb	150+	1,200	3.5in	300ft	10
Beets	250	150	450	1,200	2in	100ft	variable
Broccoli	100 heads	50 heads	200	600	12in	300ft	10
Cabbage	100 heads	50 heads	160	600	15 -18in	300ft	20
Carrots	500	300	800+	3,600	1in thin	150ft	10
Cauliflower	50 heads	50 heads	100	300	1ft	150ft	2
Chard	600 leaves	300 - 350	1,000	300	1ft	150ft	variable
Cilantro	50 lrg. Bu.	50 sm. Bu.	variable	15,000 seeds	swath	75ft	variable
Collards	600 leaves	300 - 350	1,000	150	1ft	150ft	1
Corn	300 ears	200 ears	500+	18,000	1 ft	1,800ft	10 -14
Cucumbers	250	150	500	200	1.5ft	300ft	30
Dill	50 lrg. Bu.	50 sm. Bu.	?	15,000 seeds	swath	75ft	variable
Eggplant	200 - 300	100 - 200	500=	600	1ft	600ft	1
Fennel	100 plants	50 plants	150	300	6in	75ft	variable
Garlic	100	50	150	6,000	4-5in	1,500ft	1
Green Garlic	250 plants	150 plants	400	800	3in	100ft	1
Green Onions	100 plants	50 plants	150	300	plugs of 10, 6in	75ft	4
Hard Squash	100 - 200	200 - 300	500	1800	2ft	5400ft	1
Kale	600-800 leaves	300 - 400	1,100	300	1ft	150ft	variable
Kohlrabi	100 plants	50 plants	150	300	6in	150ft	30
Leeks	250	150	400	1,440	5in	300ft	variable
Lettuce	100 heads	50 heads	200	500	double line, 10in	208ft	10
Melons	100	50	150	300	2ft	600ft	variable
Onions	100	50	350	4,800	6in	1,200ft	variable
Parsnips	250	150	400	800	2in	75ft	variable
Peppers	200	100	300+	600	1ft	600ft	1
Potatoes	150 - 200 lbs	75 - 100 lbs	300 lbs.+	4,500	8in	3,600ft	2
Pumpkins	100	50	150	1,400	2ft	4,400ft	1
Radish	400	200	680	1,800	thin 1in	75ft	30
Salad Mix	25 - 50 lbs	15 - 25 lbs	75 lbs.+	36,000	swath	180ft	20
Spinach	200 plants	100 plants	300	720	thin to 5 in	150ft	20
S.Squash	200	100	300	150	2ft	300ft	30
Strawberries	100 baskets	50 baskets	150 bas. +	1,650	12in	900ft	11
Tomatoes	200 lb	100 lb	300 lb	200	3ft	600ft	30
Turnips	250	150	450	1,200	2in	100ft	variable

CROP	# SOWINGS	SOWING INFO	SEEDS/CELL* SEEDS/FT**	SEED AMOUNTS	GERMINATION	DAYS TO MATURITY	TOTAL BED FEET
Basil	9	greenhouse*	5	13,500	5 to 10	78	1,350
Beans	9	direct sow**	3.5 seeds/ft	10,800	6 to 16	50	2,700
Beets	11	direct sow	10 seeds/ft	16,500	5 to 17	58	1,100
Broccoli	16	greenhouse	1 to 2	48,000	4 to 20	64	4,800
Cabbage	6	greenhouse	1 to 2	10,800	4 to 20	66	1,800
Carrots	16	direct sow	30 seeds/ft	72,000	N/A	56	2,400
Cauliflower	2	greenhouse	1 to 2	3,000	4 to 20	65, 80	300
Chard	3	greenhouse	1 to 2	2,700	7 to 14	50, 65	450
Cilantro	7	direct sow	200 seeds/ft	105,000	N/A	50, 55	525
Collards	1	greenhouse	1 to 2	250	4 to 20	50	150
Corn	4	direct sow	2 seeds/ft	9,000	4 to 12	80	7,200
Cucumbers	4	combo	2, 1 seed/ft	2,400	3 to 10	58, 65	1,200
Dill	4	direct sow	200 seeds/ft	60,000	7 to 21	40-55	300
Eggplant	1	greenhouse	Flats	2,250	5 to 14	67, 58	600
Fennel	2	greenhouse	2 to 3	1,800	N/A	75	150
Garlic	1	direct sow	2 cloves/ft	6,000	4 to 13	210	1,500
Green Garlic	1	direct sow	3 cloves/ft	800	4 to 13	150	100
Green Onions	variable	combo		6,000	4 to 13	60	300
Hard Squash	1	direct sow	1 seed/ft	5,400	3 to 10	95, 100	5,400
Kale	3	greenhouse	1 to 2	2,700	4 to 20	50, 65	450
Kohlrabi	5	greenhouse	1 to 2	4,500	4 to 20	38, 45	750
Leeks	2	greenhouse	Flats	1,440	4 to 13	75, 90	600
Lettuce	15	greenhouse	2 to 3	22,500	3 to 7	45	3,120
Melons	2	combo	2 to 3, 1 seed/ft	1,800	3 to 10	72	1,200
Onions	2	combo	20 seeds/ft, 2/ft	12,000	4 to 13	95, 100	2,400
Parsnips	2	direct sow	14 seeds/ft	800	N/A	110	150
Peppers	1	greenhouse	flats	2,250	6 to 28	75, 80	600
Potatoes	2	direct sow	1.5 seeds/ft	11,250	N/A	110	6,000
Pumpkins	1	direct sow	1 seed/ft	4,200	3 to 10	85, 95, 110	4,400
Radish	4	direct sow	35 seeds/ft	21,600	3 to 10	30	300
Salad Mix	8	direct sow	200 seeds/ft	300,000	3 to 7	20	1,440
Spinach	8	direct sow	35 seeds/ft	28,800	6 to 12	35, 42	1,200
S.Squash	4	combo	2 to 3, 1 seed/ft	1,800	3 to 10	48, 55	1,200
Strawberries	1	nursery	1 pl/ft	1,650	N/A	120	900
Tomatoes	4	greenhouse	flats	1,000	5 to 14	65	2,400
Turnips	2	direct sow	35 seeds/ft	1,800	1 to 5	40-55	150
						TOTAL BED FEET:	**59,585**

Total acreage: 4.103

*seeds/cell=propagated in greenhouse
**seeds/ft=direct sown in field

Appendix 9: Sample of Acreage, Propagation Requirements, and Planting Schedule for Direct Market and CSA Crops

CROP	ACREAGE (TOTAL)	NUMBER OF PLANTINGS
Basil	.1 acres	9
Beans	.12 acres	6
Beets	.08 acres	11
Broccoli	.36 acres	17
Cabbage	.21 acres	10
Carrots	.17 acres	16
Cauliflower	.02 acres	2
Chard	.04 acres	3
Cilantro	.04 acres	7
Collards	.01 acres	1
Corn	.5 acres	4
Cucumbers	.08 acres	4
Dill	.02 acres	4
Eggplant	.04 acres	1
Fennel	.01 acres	2
Garlic	.1 acres	1
Green Garlic	.007 acres	1
Green Onions	.02 acres	3
Hard Squash	.37 acres	1
Kale	.04 acres	3
Kohlrabi	.05 acres	5
Leeks	.04 acres	2
Lettuce	.23 acres	16
Melons	.04 acres	1
Onions	.17 acres	2
Parsnips	.01 acres	2
Peppers	.06 acres	1
Potatoes	.5 acres	2
Pumpkins	.3 acres	1
Radish	.02 acres	3
Salad Mix	.1 acres	8
Spinach	.08 acres	8
S. Squash	.08 acres	4
Strawberries	.06 acres	1
Tomatoes	.17 acres	4
Turnips	.01 acres	2
	4.24 Acres Total	

FIELD SOWING DATES (DIRECT SOWINGS)

	MARCH	APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER		
Beans				25		15		5		25		15		5					
Beets	25	5	15	25	5		25		15		5		25		15	25			
Carrots	25	5	15	25	5	15	25	5	15	25	5	15	25	5	15	25			
Cilantro			15		5		25		15			15		5			5		
Corn					5		25		15		5								
Dill					5			5				15		5					
Onions		5																20	
Parsnips		5						5											
Potatoes			15																
Pumpkins						15													
Radish				25		15		5											
Salad Mix						15		5		25		15		5		25		15	25
Spinach					5		25		15		5		25		15		5		25
Squash, Winter						15													
Turnips					5										15				

FIELD PLANTING DATES (WINTER BLOCK)

Garlic	11/03	
Onions	Sow: 9/20/02	Transplant: 1/5/04
Strawberries	11/15/03	

GREENHOUSE SOWING DATES (TRANSPLANTED CROPS)

	FEBRUARY	MARCH			APRIL			MAY			JUNE			JULY			AUGUST		
Basil		1		20		10		1		20		10		1		20		10	
Broccoli	20	1	10	20	1	10	20	1	10	20	1	10	20	1	10	20	1		
Cabbage	20		10		1	20			10		1		20		10		1		20
Cauliflower		1	20																
Chard	20		10											1					
Collards	20								10										
Cucumber					1			1			1			1					
Eggplant	20																		
Flowers	20			20			20			20									
B. Onions		1		20		10													
Kale	20					10								1					
Kolhrabi					1				10				20			20			20
Leeks	20						20												
Lettuce				20	1	10	20	1	10	20	1	10	20	1	10	20	1	10	20
Melons									10										
Peppers	20																		
Squash, Summer					1			1			1			1					
Tomatoes		1		20		10		1											

FIELD TRANSPLANT DATES

	APRIL			MAY			JUNE			JULY			AUGUST			SEPTEMBER		
B. Onions			20			20		10										
Basil				1		20	1		20	1		20	1	20				
Broccoli		10	20	1	10	20	1	10	20	1	10	20	1	10	20	1		
Cabbage		10		1		20		10		1		20		10		1		20
Chard	1			1														
Cucumber				1			1			1			1					
Eggplant					15													
Flowers					15			15			15			15				
Kale	1			1														
Kolhrabi			20			20			20			20			20			
Lettuce			20	1	10	20	1	10	20	1	10	20	1	10	20	1	10	20
Melons								10			10							
Peppers					15													
S. Squash				1			1			1			1					
Tomatoes				1		20		10		1								

NUMBER OF TRANSPLANTS NEEDED PER SUCCESSION:

Basil	400	
Broccoli	500	
Bunch Onions	375	(6-10 seeds/cell)
Cabbage	400	
Cauliflower	250	
Chard	400	
Collards	400	
Cucumbers	200	
Eggplant	600	
Flowers	600	
Eggplant	600	
Fennel	375	
Kale	400	
Kohlrabi	375	
Leeks	1440	
Lettuce	500	
Melons	300	
Peppers	900	(300 each)
S. Squash	150	
Tomatoes	200	

PROPAGATION TRAY REQUIREMENTS

CROP	TYPE OF TRAY	#TRAYS/SOWING	# SOWINGS	TOTAL
Eggplant	Sowing flat	2	1	2
Leeks	Sowing Flat	2	2	4
Peppers	Sowing flat	4	1	4
Tomatoes	Sowing flat	2	4	8

CROP	TYPE OF TRAY	#TRAYS/SOWING	# SOWINGS	TOTAL
Bunching Onions	175 speedling	6	5	30
Basil	120 speedling	4	9	36
Broccoli	120 speedling	7	17	119
Cabbage	120 speedling	4	10	40
Chard	200 speedling	2	3	6
Collards	200 speedling	2	1	2
Cucumbers	2" 72 speedling	4	1-2	4-8
Eggplant	50 cell plug tray	16 (8 each)	1	16
Flowers	50 cell plug tray	10 (2 of each)	2	20
Kale	200 speedling	2	3	6
Lettuce	216 green tray	2	17	34
Melon	2" 72 speedling	5	1	5
Peppers	50 cell plug tray	10	1	10
Summer Squash	2" 72 speedling	3	1-2	10
Tomatoes	50 cell plug tray	5	4	20

Appendix 10: CSA Crop Harvest Schedule