Cool Season Surface Crop

Asparagus

Days to Germination	• 21
Days to Maturity	• 3 years from first planting
Soil	• pH: 6.5 to 7.5
Spacing	• Between plants: 18 in. • Between rows: 48 in. if cultivated by hand or field implements
Harvest	• Harvest spears when they are approximately 6 in. to 8 in. tall. • Spears should be dark green and firm with tightly closed tips. • Harvest spears by hand by snapping or cutting them just above the ground.
Postharvest	• With good ventilation, can be stored for 3 weeks at 35°F and 95% to 100% relative humidity
Production Concerns	• Provide adequate moisture during the fern stage to avoid significant reductions in next spring's crop. • Avoid light, frequent irrigation during the fern stage to prevent foliage disease development.
Pests and Diseases	• Pests: asparagus aphids, asparagus beetles, spotted asparagus beetles • Diseases: Fusarium, needle blight, purple spot, asparagus rust
Other Considerations	• Because asparagus occupies a site for a number of years, soil preparation and fertilization are particularly important. • Asparagus grows more rapidly as the temperature increases.

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Sources accessed November 9, 2005.

Cool Season Surface Crop

Cabbage

Days to Germination	• 4 to 14
Days to Maturity	• 70 to 80
Soil	• pH: 6.5 to 7.0 • Well-drained loam soil with high organic matter content
Spacing	• Between plants: 12 in. • Between rows: 24 in. if cultivated by hand; 42 in. if field implements are used
Harvest	• Harvest when heads are firm and before they split or burst. • Leave 4 to 6 wrapper leaves attached to heads harvested for fresh market display.
Postharvest	• Can be stored for 5 to 6 months at 32°F and 98% to 100% relative humidity
Production Concerns	• Provide an even supply of moisture but avoid overwatering transplants.
Pests and Diseases	• Pests: flea beetles, cabbage loopers, aphids, cutworms, imported cabbageworms, diamondback moths • Diseases: Alternaria leaf spot, black rot, black leg, club root, wire stem, downy mildew
Other Considerations	• Cooler temperatures improve cabbage flavor because plant cells convert starches to sugars to protect the plant from the cold.

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Sources accessed November 9, 2005.

Cool Season Surface Crop

Cauliflower

Days to Germination	• 5 to 10
Days to Maturity	• 65 to 75
Soil	• pH: 6.4 to 7.4 • Well-drained loamy soil
Spacing	• Between plants: 24 in. • Between rows: 24 in. if cultivated by hand; 42 in. if field implements are used
Harvest	• Harvest cauliflower when the heads are 5 in. to 6 in. in diameter. • Cut cauliflower off the stalk just below the head. • For heads harvested for fresh market display, leave at least two leaves on heads for protection and presentation.
Postharvest	• Can be held for 3 to 4 weeks at 32°F and 95% relative humidity • Highly perishable
Production Concerns	• Cauliflower is blanched to maintain white heads. To blanche cauliflower, tie the outer leaves over the heads when the heads become visible. • Self-blanching varieties are also available.
Pests and Diseases	• Pests: aphids, cutworms, flea beetles, cabbage loopers, imported cabbageworms, diamondback moths • Diseases: Alternaria leaf spot, black leg, black rot, club root, wire stem, downy mildew
Other Considerations	• Cauliflower heads are easily damaged and require care when handling.

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Sources accessed October 26, 2005.

Cool Season Surface Crop

Lettuce

Days to Germination	• 7 to 14
Days to Maturity	• 55 to 80
Soil	• pH: 6.5 to 6.8 • Good moisture retention
Spacing	• Between plants: 3 in. to 6 in. • Between rows: 18 in. if cultivated by hand; 42 in. if field implements are used
Harvest	• Harvest lettuce before flower stalks appear. • To harvest by the leaf, wait until removing 3 or 4 outside leaves will not harm the plant's growth. • To harvest by the head, wait until heads are bigger than a fist, well-formed, and solid.
Postharvest	• Clean and cool lettuce by hydrocooling. • Head lettuce can be stored 2 to 3 weeks at 32°F and 98% to 100% relative humidity.
Production Concerns	• Provide continuous moisture to promote vigorous growth and keep lettuce from becoming bitter. • Grow lettuce in semi-shade to shade.
Pests and Diseases	• Pests: aphids, armyworms, imported cabbageworms, loopers, slugs • Diseases: damping-off, downy mildew, big vein, mosaic virus, nematodes, Sclerotinia drop, soft rot, tip burn
Other Considerations	• Very sensitive to ethylene gas

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Sources accessed November 2, 2005.

Cool Season Surface Crop

Spinach

Days to Germination	• 7 to 14
Days to Maturity	• 40 to 50
Soil	• pH: 6.2 to 6.9
Spacing	• Between plants: 3 in. • Between rows: 18 in. if cultivated by hand; 42 in. if field implements are used
Harvest	• Harvest spinach when leaves reach an edible size and before seed stalks develop. • To harvest, cut leaves from the plant or pull the whole plant from the ground.
Postharvest	• Can be stored for 10 to 14 days at 32°F and 95% to 100% relative humidity.
Production Concerns	• Provide uniform moisture throughout the growing season. • Straw mulch can be used to retain moisture.
Pests and Diseases	• Pests: armyworms, aphids, crown maggots, flea beetles, leafhoppers, loopers, leaf miners, slugs • Diseases: spinach blight, anthracnose, damping-off, downy mildew
Other Considerations	• Spinach is highly perishable and is usually marketed or eaten soon after harvest. • Spinach is sensitive to ethylene gas.

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Cool Season Surface Crop

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Days to Germination	
Days to Maturity	
Soil	
Spacing	
Harvest	
Postharvest	
Production Concerns	
Pests and Diseases	
Other Considerations	