

**Soil Temperature Conditions for Vegetable Seed Germination
(in degrees F)**

| Crop | Minimum | Optimum Range | Optimum | Maximum |
|--------------|----------------|----------------------|----------------|----------------|
| Asparagus | 50 | 60-85 | 75 | 95 |
| Bean | 60 | 60-85 | 80 | 95 |
| Beet | 40 | 50-85 | 85 | 95 |
| Cabbage | 40 | 45-95 | 85 | 100 |
| Carrot | 40 | 45-85 | 80 | 95 |
| Cauliflower | 40 | 45-85 | 80 | 100 |
| Chard, Swiss | 40 | 50-85 | 85 | 95 |
| Corn | 50 | 60-95 | 95 | 105 |
| Cucumber | 60 | 60-95 | 95 | 105 |
| Eggplant | 60 | 75-90 | 85 | 95 |
| Lettuce | 35 | 40-80 | 75 | 95 |
| Muskmelon | 60 | 75-95 | 90 | 100 |
| Onion | 35 | 50-95 | 75 | 95 |
| Parsley | 40 | 50-85 | 75 | 90 |
| Parsnip | 35 | 50-70 | 65 | 85 |
| Pea | 40 | 40-75 | 75 | 85 |
| Pepper | 60 | 65-95 | 85 | 95 |
| Pumpkin | 60 | 70-90 | 95 | 100 |
| Radish | 40 | 45-90 | 85 | 95 |
| Spinach | 35 | 45-75 | 70 | 85 |
| Squash | 60 | 70-95 | 95 | 100 |
| Tomato | 50 | 60-85 | 85 | 95 |
| Turnip | 40 | 60-105 | 85 | 105 |
| Watermelon | 60 | 70-95 | 95 | 105 |

*Daily fluctuation to 60° F or lower at night is essential

Data Compiled by J. F. Harrington, Dept of Vegetable Crops, University of CA at Davis

**Days to Appearance of Seedlings at Various Soil Temperatures from
Seed Planted at 1/2" Depth**

| Crop | Soil temperature in degrees F | | | | | | | | |
|-------------|-------------------------------|-----|-----|-----|----|----|-----|------|-----|
| | 32 | 41 | 50 | 59 | 68 | 77 | 86 | 95 | 104 |
| Asparagus | x | x | 53 | 24 | 15 | 10 | 11 | 19 | 28 |
| Bean | x | x | x | 16 | 11 | 8 | 6 | 6 | x |
| Beet | ... | 42 | 17 | 10 | 6 | 5 | 4 | 4 | ... |
| Cabbage | ... | ... | 15 | 9 | 6 | 4 | 3 | ... | ... |
| Carrot | x | 51 | 17 | 10 | 7 | 6 | 6 | 8 | x |
| Cauliflower | ... | ... | 19 | 10 | 6 | 5 | 4 | ... | ... |
| Corn | x | x | 22 | 12 | 7 | 4 | 4 | 3 | x |
| Cucumber | x | x | x | 13 | 6 | 4 | 3 | 3 | ... |
| Eggplant | ... | ... | ... | 13 | 8 | 5 | ... | ... | ... |
| Lettuce | 49 | 15 | 7 | 4 | 3 | 2 | 2 | x | x |
| Muskmelon | ... | ... | ... | ... | 8 | 4 | 3 | ... | ... |
| Onion | 135 | 31 | 13 | 7 | 5 | 4 | 4 | 12 | x |
| Parsley | ... | ... | 29 | 17 | 14 | 13 | 12 | ... | ... |
| Parsnip | 171 | 57 | 27 | 19 | 14 | 15 | 32 | x | x |
| Pea | ... | 36 | 13 | 9 | 7 | 6 | 6 | ... | ... |
| Pepper | x | x | x | 25 | 12 | 8 | 8 | 9 | x |
| Radish | ... | 29 | 11 | 6 | 4 | 3 | 3 | | ... |
| Spinach | 62 | 22 | 12 | 7 | 6 | 5 | 6 | x | x |
| Tomato | x | x | 43 | 14 | 8 | 6 | 6 | 9 | x |
| Turnip | x | x | 5 | 3 | 2 | 1 | 1 | 1 | 2 |
| Watermelon | ... | x | ... | ... | 12 | 5 | 4 | 3 | ... |

X little or no germination
 ... not tested

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