

Potato Planting Tips

Andy's Advice

Andy Robinson, Potato Extension Agronomist at NDSU / U of M

www.ag.ndsu.edu/potatoextension

As the long winter ends and we begin a new growing season, here's a few items to help you with planting. A couple of years ago I published a planting rate/seed calculator. This table can be viewed and downloaded from the NDSU / U of M Potato Extension website www.ag.ndsu.edu/potatoextension.

Calculating seed potato quantity for planting varies by row spacing, within-row spacing and seed size. Average row spacing of potato production is 36 inches. However, some potatoes are planted in 34- and 38-inch row spacing. Row, within-row spacing and average tuber seed size will change the quantity of seed needed and plant population (Table 1 and 2). Within-row spacing varies greatly depending on the cultivar selected, desired harvested tuber profile and physiological seed age.

Physiological seed age should cause one to adjust within-row spacing. As seed ages it will go from dormant seed or no sprouts, to young or single sprouts on the apical end of the tuber, to middle aged or multiple sprouting, to old seed or hairy sprouts and finally to no top or little tuber (Figure 1). Ideally, most potato growers want to plant middle aged seed because it will have rapid stem growth, but not too many stems. The best way to determine physiological seed age is to sprout seed pieces in a pot before planting and observe the number of stems. Ideally, test 25 to 50 seed pieces to get a good estimate of average stem number. If seed is physiologically old, or has many stems, then within-row spacing could be extended to allow more room for tubers to grow. However, if young seed is planted the within-row spacing could be decreased to reduce the number oversized potato tubers.

There is a relationship between stem number and tuber set. As stem number increases, the number of tubers increase. The number will vary by cultivar and environmental conditions. Understanding the seed age will help you make adjustment to within-row spacing. Seed size typically ranges from an average size of 1.5 to 2.5 oz per seed piece. Decisions on seed piece size will depend on seed availability, seed cost, and cultivar. Each seed piece should have at least one eye. Some cultivars such as Russet Bannock or Shepody have a low distribution of eyes per tuber, necessitating a larger seed piece.

Matching seed tuber temperature to soil temperature is important to not stress the seed and provide optimal growth. Potato sprout emergence rate is dependent on soil temperature. In general, as soil temperatures rise from 45 to 75 °F stems will faster (Figure 2). However, over 75 °F stem growth can slow down.

Growing a great potato crop starts with high quality seed and managing the seed. I hope these tips can be helpful. Best of luck with the 2018 crop.

Table 1. Plant population based on row and within-row spacing.

Row spacing	Within-row spacing (inch)						
	6	7	8	9	10	12	14
	Plant population (number)						
34	30,748	26,356	23,061	20,499	18,449	15,374	13,178
36	29,040	24,891	21,780	19,360	17,424	14,520	12,446
38	27,512	23,581	20,634	18,341	16,507	13,756	11,791

Table 2. Amount of seed need to plant one acre of potato.

Row spacing	Within-row spacing	Seed piece size (oz)				
		1.5	1.75	2	2.25	2.5
cwt/acre of seed						
34	6	28.8	33.6	38.4	43.2	48.0
34	7	24.7	28.8	32.9	37.1	41.2
34	8	21.6	25.2	28.8	32.4	36.0
34	9	19.2	22.4	25.6	28.8	32.0
34	10	17.3	20.2	23.1	25.9	28.8
34	12	14.4	16.8	19.2	21.6	24.0
34	14	12.4	14.4	16.5	18.5	20.6
36	6	27.2	31.8	36.3	40.8	45.4
36	7	23.3	27.2	31.1	35.0	38.9
36	8	20.4	23.8	27.2	30.6	34.0
36	9	18.2	21.2	24.2	27.2	30.3
36	10	16.3	19.1	21.8	24.5	27.2
36	12	13.6	15.9	18.2	20.4	22.7
36	14	11.7	13.6	15.6	17.5	19.4
38	6	25.8	30.1	34.4	38.7	43.0
38	7	22.1	25.8	29.5	33.2	36.8
38	8	19.3	22.6	25.8	29.0	32.2
38	9	17.2	20.1	22.9	25.8	28.7
38	10	15.5	18.1	20.6	23.2	25.8
38	12	12.9	15.0	17.2	19.3	21.5
38	14	11.1	12.9	14.7	16.6	18.4



Figure 1. Physiological seed age from dormant to apical sprouting to multiple sprouting and little tuber.

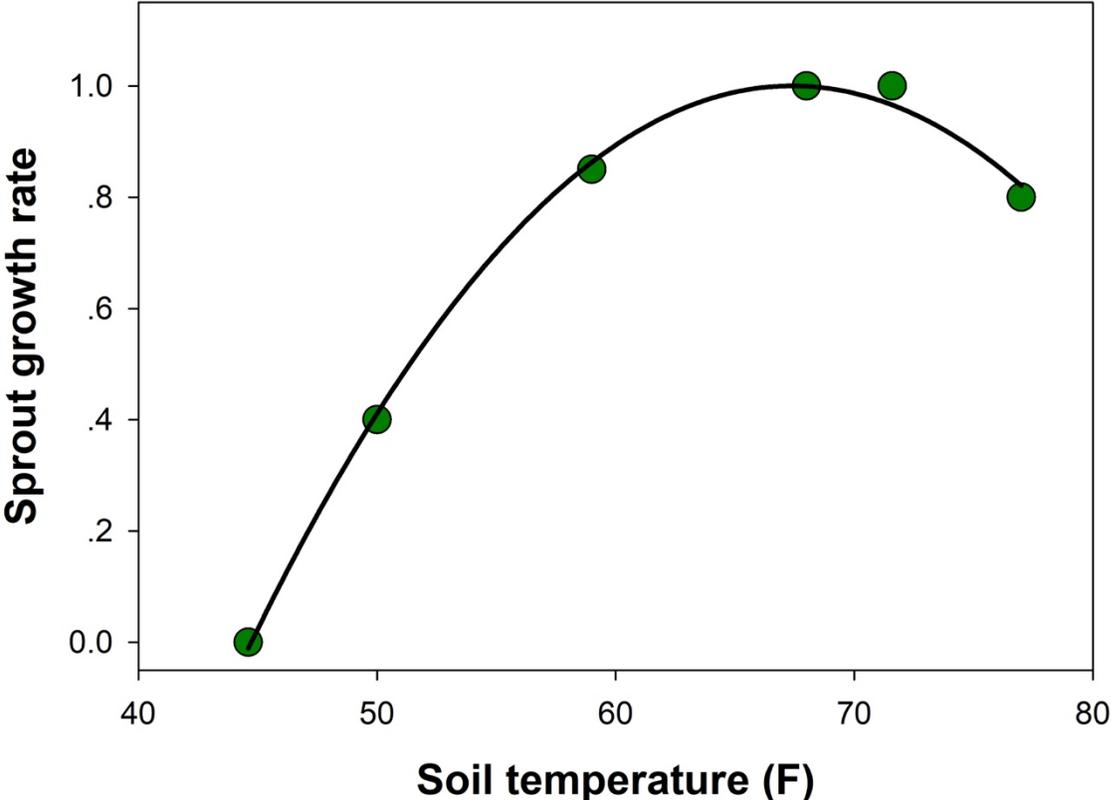


Figure 2. Sprout growth rate is related to soil temperature (adapted from Kelmke and Moll, 1990).