

Estimating Potential Yield Losses

Estimating potential yield loss can be and quite often is a very difficult and capricious thing to do. When trying to determine yield losses from events such as herbicide drift or other similar events, picking plots from the effected area and from some area not effected is the best approach.

The purpose and intent of the following tables is for help in making loss estimates in situations of potential yield loss from the effects boll rot, insect boll damage or premature defoliation or other similar events.

Be advised, estimating yield loss can be very difficult and can often be **misleading**. The following tables calculate potential losses based on damaged boll counts. Keep in mind; all values here are calculated estimates. It is impossible to actually measure something that is “lost”. That’s why it’s called “lost”, right?

Variation in boll size, lint percent, future weather conditions, harvest losses and ginning losses can all effect how boll counts relate to final yield. The following Tables are designed to help you **estimate** potential losses based on the number of bolls lost per row foot.

Following are some suggestions for using these tables for estimating loss due to boll rot or insect damage (i.e. – boll damage from worms or stink bugs, etc):

- 1) Count all damaged bolls on at least 10 feet of row selected at random in at least four representative locations in the field. Using this data calculate an average number of damaged (lost) bolls per row foot.
- 2) Establish an estimate of boll size. Two suggestions – **a)** At random, pick all the seedcotton from 50 to 100 un-damaged bolls from similar positions on the plant. Weigh the composite sample on an accurate scale calibrated in grams. Divide the weight (in grams) by the number of bolls picked and this will give an approximate average boll weight for this class of bolls. This calculation should be made for several samples taken to represent the field. **b)** If no un-damaged bolls are available in the same fruiting positions, use boll weights taken from the closest available un-damaged fruiting positions.
- 3) Once average boll size and average number of damaged, or lost, bolls per row foot are established, go to the appropriate table based on expected turnout (33 to 35 % is a good average) and determine how many pounds of lint per acre is represented by one (1) boll per row foot for the specified row spacing. To determine estimated loss in pounds per acre, multiply the number of damaged bolls per row foot counted by the value from the table.

Example 1 - 40 inch rows, average two (2) rotten bolls per row foot, average boll weight 3.0 grams (rounded off to the nearest one half gram) and an expected turnout of 33% - Go to Table 4 (for 33% turnout), go to the 40 inch row line, follow across to the 3.0 gram per boll column and you find that one (1) boll per row foot is calculated

to be 28.5 pounds per acre. 28.5 times two (2) bolls per row foot is equal to 57 pounds of **estimated** lint lost per acre.

Example 2 – defoliating a little early – 3 bolls per row foot, estimated weight 2.0 grams, with an estimated turnout of 30% are left at the top of plants on 38 inch rows. Go to Table 5 (for 30% turnout), go to the 38 inch row line, follow across to the 2.0 gram per boll column and you find that one (1) boll per row foot is calculated to be 18.2 pounds per acre. 18.2 times three (3) bolls per row foot is equal to 54.6 pounds of **estimated** lint lost per acre.

Table 1		Calculated pounds per acre/ per boll / per row foot at various row spacings and boll weights.								
		Turn out is assumed to be 40%								
		Boll Weight in Grams and Ounces (seedcotton)								
		Calculated - One boll per row foot equals this amount of lint per acre under these assumptions								
Row Width (in)	Row-feet/ac	5.0 gm / 0.18 oz	4.5 gm / 0.16 oz	4.0 gm / 0.14 oz	3.5 gm / 0.12 oz	3.0 gm / 0.11 oz	2.5 gm / 0.09 oz	2.0 gm / 0.07 oz	1.5 gm / 0.05 oz	
50	10454	46.1	41.4	36.8	32.2	27.6	23.0	18.4	13.8	
40	13068	57.6	51.8	46.1	40.3	34.5	28.8	23.0	17.3	
38	13756	60.6	54.5	48.5	42.4	36.4	30.3	24.2	18.2	
36	14520	64.0	57.6	51.2	44.8	38.4	32.0	25.6	19.2	
32	16335	72.0	64.8	57.6	50.4	43.2	36.0	28.8	21.6	
30	17424	76.8	69.1	61.4	53.7	46.1	38.4	30.7	23.0	
20	26136	115.1	103.6	92.1	80.6	69.1	57.6	46.1	34.5	
15	34848	153.5	138.2	122.8	107.5	92.1	76.8	61.4	46.1	
10	52272	230.3	207.2	184.2	161.2	138.2	115.1	92.1	69.1	

Table 2		Calculated pounds per acre/ per boll / per row foot at various row spacings and boll weights.								
		Turn out is assumed to be 38%								
		Boll Weight in Grams and Ounces (seedcotton)								
		Calculated - One boll per row foot equals this amount of lint per acre under these assumptions								
Row Width (in)	Row-feet/ac	5.0 gm / 0.18 oz	4.5 gm / 0.16 oz	4.0 gm / 0.14 oz	3.5 gm / 0.12 oz	3.0 gm / 0.11 oz	2.5 gm / 0.09 oz	2.0 gm / 0.07 oz	1.5 gm / 0.05 oz	
50	10454	43.8	39.4	35.0	30.6	26.3	21.9	17.5	13.1	
40	13068	54.7	49.2	43.8	38.3	32.8	27.3	21.9	16.4	
38	13756	57.6	51.8	46.1	40.3	34.5	28.8	23.0	17.3	
36	14520	60.8	54.7	48.6	42.5	36.5	30.4	24.3	18.2	
32	16335	68.4	61.5	54.7	47.9	41.0	34.2	27.3	20.5	
30	17424	72.9	65.6	58.3	51.0	43.8	36.5	29.2	21.9	
20	26136	109.4	98.4	87.5	76.6	65.6	54.7	43.8	32.8	
15	34848	145.8	131.3	116.7	102.1	87.5	72.9	58.3	43.8	
10	52272	218.8	196.9	175.0	153.1	131.3	109.4	87.5	65.6	

Table 3		Calculated pounds per acre/ per boll / per row foot at various row spacings and boll weights.							
		Turn out is assumed to be 35%							
		Boll Weight in Grams and Ounces (seedcotton)							
		Calculated - One boll per row foot equals this amount of lint per acre under these assumptions							
Row Width (in)	Row-feet/ac	5.0 gm / 0.18 oz	4.5 gm / 0.16 oz	4.0 gm / 0.14 oz	3.5 gm / 0.12 oz	3.0 gm / 0.11 oz	2.5 gm / 0.09 oz	2.0 gm / 0.07 oz	1.5 gm / 0.05 oz
50	10454	40.3	36.3	32.2	28.2	24.2	20.1	16.1	12.1
40	13068	50.4	45.3	40.3	35.3	30.2	25.2	20.1	15.1
38	13756	53.0	47.7	42.4	37.1	31.8	26.5	21.2	15.9
36	14520	56.0	50.4	44.8	39.2	33.6	28.0	22.4	16.8
32	16335	63.0	56.7	50.4	44.1	37.8	31.5	25.2	18.9
30	17424	67.2	60.4	53.7	47.0	40.3	33.6	26.9	20.1
20	26136	100.7	90.7	80.6	70.5	60.4	50.4	40.3	30.2
15	34848	134.3	120.9	107.5	94.0	80.6	67.2	53.7	40.3
10	52272	201.5	181.3	161.2	141.0	120.9	100.7	80.6	60.4

Table 4		Calculated pounds per acre/ per boll / per row foot at various row spacings and boll weights.							
		Turn out is assumed to be 33%							
		Boll Weight in Grams and Ounces (seedcotton)							
		Calculated - One boll per row foot equals this amount of lint per acre under these assumptions							
Row Width (in)	Row-feet/ac	5.0 gm / 0.18 oz	4.5 gm / 0.16 oz	4.0 gm / 0.14 oz	3.5 gm / 0.12 oz	3.0 gm / 0.11 oz	2.5 gm / 0.09 oz	2.0 gm / 0.07 oz	1.5 gm / 0.05 oz
50	10454	38.0	34.2	30.4	26.6	22.8	19.0	15.2	11.4
40	13068	47.5	42.7	38.0	33.2	28.5	23.7	19.0	14.2
38	13756	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0
36	14520	52.8	47.5	42.2	36.9	31.7	26.4	21.1	15.8
32	16335	59.4	53.4	47.5	41.6	35.6	29.7	23.7	17.8
30	17424	63.3	57.0	50.7	44.3	38.0	31.7	25.3	19.0
20	26136	95.0	85.5	76.0	66.5	57.0	47.5	38.0	28.5
15	34848	126.7	114.0	101.3	88.7	76.0	63.3	50.7	38.0
10	52272	190.0	171.0	152.0	133.0	114.0	95.0	76.0	57.0

Table 5	Calculated pounds per acre/ per boll / per row foot at various row spacings and boll weights.								
	Turn out is assumed to be 30%								
		Boll Weight in Grams and Ounces (seedcotton)							
		Calculated - One boll per row foot equals this amount of lint per acre under these assumptions							
Row Width (in)	Row-feet/ac	5.0 gm / 0.18 oz	4.5 gm / 0.16 oz	4.0 gm / 0.14 oz	3.5 gm / 0.12 oz	3.0 gm / 0.11 oz	2.5 gm / 0.09 oz	2.0 gm / 0.07 oz	1.5 gm / 0.05 oz
50	10454	34.5	31.1	27.6	24.2	20.7	17.3	13.8	10.4
40	13068	43.2	38.9	34.5	30.2	25.9	21.6	17.3	13.0
38	13756	45.4	40.9	36.4	31.8	27.3	22.7	18.2	13.6
36	14520	48.0	43.2	38.4	33.6	28.8	24.0	19.2	14.4
32	16335	54.0	48.6	43.2	37.8	32.4	27.0	21.6	16.2
30	17424	57.6	51.8	46.1	40.3	34.5	28.8	23.0	17.3
20	26136	86.4	77.7	69.1	60.4	51.8	43.2	34.5	25.9
15	34848	115.1	103.6	92.1	80.6	69.1	57.6	46.1	34.5
10	52272	172.7	155.4	138.2	120.9	103.6	86.4	69.1	51.8