

# I. FIELD CAPACITIES FOR MACHINES

Average Field Speeds, Field Efficiencies, and Effective Field Capacities for Iowa Farm Machines:

Machine	Speed		FE	Effective field capacity	
	(mph)	(km/h)		(A/h)	(ha/h)
<b>Shredder</b>					
6' rotary	4.5	7.2	80	2.6	1.1
10' flail	4.5	7.2	85	4.6	1.9
12' flail	4.5	7.2	85	5.6	2.3
15' flail	4.5	7.2	82	6.7	2.7
<b>Fertilizer Spreader</b>					
4 ton	6.0	9.7	70	10.2	4.1
<b>Anhydrdrous Ammonia</b>					
7 knife	4.5	7.2	60	5.7	2.3
9 knipe	4.5	7.2	60	7.4	3.0
<b>Plow</b>					
3-16" bottoms	4.5	7.2	85	1.8	0.7
4-16" bottoms	4.5	7.2	85	2.5	1.0
5-16" bottoms	4.5	7.2	83	3.0	1.2
6-16" bottoms	4.5	7.2	81	3.5	1.4
7-16" bottoms	4.5	7.2	79	4.0	1.6
8-16" bottoms	4.5	7.2	78	4.5	1.8
<b>Chisel Plow</b>					
9'6"	5.0	8.0	85	1.8	0.7
11'3"	5.0	8.0	85	5.8	2.3
13'6"	5.0	8.0	83	6.8	2.8
15'	5.0	8.0	81	7.4	3.0

Machine	Speed		FE	Effective field capacity	
	(mph)	(km/h)		(A/h)	(ha/h)
<b>Offset Disk</b>					
10'	5.0	8.0	85	4.9	2.0
13' 6"	5.0	8.0	85	5.8	2.3
15'	5.0	8.0	83	6.8	2.8
18'	5.0	8.0	80	7.8	3.2
<b>Tandem Disk</b>					
14'	5.5	8.9	83	7.8	3.2
17'	5.5	8.9	81	9.2	3.7
21'	5.5	8.9	80	11.2	4.5
24'	5.5	8.9	80	12.8	5.2
<b>Field Cultivator</b>					
15'	5.0	8.0	83	7.6	3.1
21'	5.0	8.0	80	10.2	4.1
27'	5.0	8.0	80	13.1	5.3
34'	5.0	8.0	78	16.1	6.5
<b>Spring Tooth</b>					
15'	5.0	8.0	83	7.8	3.2
21'	5.0	8.0	80	10.2	4.1
<b>Peg Tooth</b>					
21'	6.0	9.7	80	12.2	4.9
31'	6.0	9.7	80	18.0	7.3
<b>Rotary Tiller</b>					
80"	4.5	7.2	83	3.0	1.2
100"	4.5	7.2	82	3.7	1.5
120"	4.5	7.2	81	4.4	1.8
140"	4.5	7.2	80	5.1	2.1
160"	4.5	7.2	78	5.6	2.3
<b>Sprayer</b>					
8 row	5.0	8.0	65	7.9	3.2
12 row	5.0	8.0	65	11.8	4.8
18 row	5.0	8.0	65	17.7	7.2

Machine	Speed		FE	Effective field capacity	
	(mph)	(km/h)		(A/h)	(ha/h)
<b>Planter (seed only)</b>					
4-38"	5.0	8.0	76*	5.8	2.3
4-30"	5.0	8.0	76*	4.6	1.9
6-30"	5.0	8.0	74*	6.7	2.7
8-30"	5.0	8.0	72*	8.7	3.5
12-30"	5.0	8.0	70*	12.7	5.1
16-30"	7.5	12.1	68*	16.5	6.7
<b>Rotary Hoe</b>					
4-38"	7.5	12.1	88	10.1	4.1
4-30"	7.5	12.1	88	8.0	3.2
6-30"	7.5	12.1	86	22.7	9.2
8-30"	7.5	12.1	84	15.3	6.2
12-30"	7.5	12.1	82	22.4	9.1
16-30"	7.5	12.1	80	29.1	11.8
<b>Grain Drill</b>					
10'	5.0	8.0	72	4.4	1.8
12' 6"	5.0	8.0	72	5.4	2.2
14'	5.0	8.0	70	5.9	2.4
17'	5.0	8.0	70	7.2	2.9
<b>Broadcast Seeder</b>					
20'	5.0	8.0	75	9.1	3.7
<b>Sweep Cultivator</b>					
4-38"	4.5	7.2	83	5.7	2.3
4-30"	4.5	7.2	83	4.5	1.8
6-30"	4.5	7.2	80	6.6	2.7
8-30"	4.5	7.2	78	8.5	3.4
12-30"	6.0	9.7	76	16.6	6.7
<b>Rolling Cultivator</b>					
4-38"	6.0	9.7	83	3.4	1.4
6-30"	6.0	9.7	80	8.7	3.5
8-30"	6.0	9.7	78	11.4	4.6
12-30"	6.0	9.7	76	16.6	6.7

Machine	Speed		FE	Effective field capacity	
	(mph)	(km/h)		(A/h)	(ha/h)
<b>Mower</b>					
7'	5.0	8.0	80	3.4	1.4
<b>Mower Conditioner</b>					
7'	5.0	8.0	85	3.6	1.5
9'	5.0	8.0	83	4.5	1.8
12'	5.0	8.0	81	5.9	2.4
<b>Self Propelled Windrower</b>					
10'	6.0	9.7	85	6.2	2.5
12'	6.0	9.7	84	7.3	3.0
14'	6.0	9.7	83	8.4	3.4
16'	6.0	9.7	82	9.5	3.8
<b>Rake</b>					
7'	5.0	8.0	88	3.7	1.5
9'	5.0	8.0	86	4.7	1.9
14'	5.0	8.0	83	7.2	2.9
18'	5.0	8.0	83	9.0	3.6
<b>Combine: Soyabeans &amp; Small Grain</b>					
10"	2.8	4.5	76	2.6	1.1
13"	2.8	4.5	74	3.3	1.3
15"	2.8	4.5	73	3.7	1.5
20"	2.6	4.2	71	4.5	1.8
<b>Combine: Corn</b>					
2-38"	2.6	4.2	75	1.5	0.6
3-38"	2.6	4.2	73	2.2	0.9
4-38"	2.6	4.2	71	2.8	1.1
6-38"	2.6	4.2	67	3.9	1.6
3-30"	2.6	4.2	73	1.7	0.7
4-30"	2.6	4.2	71	2.2	0.9
6-30"	2.6	4.2	67	3.2	1.3
8-30"	2.5	4.0	65	3.9	1.6

\* If chemical application attachments are used, reduce field capacities 5 to 10 percent from that shown in table.

	Tons/hour
Baler only and baler with accumulator	6.4
Baler with bale thrower, trailing wagon	4.8
Load-haul-stack bales, tractor with bale fork	4.0**
Load-haul-stack bales, automatic balewagon	3.5**
Large round baler	7.5
Bale mover, field to roadside	4.8
Bale mover, haul and store or feed	3.2**
Stacker, 1 ton	5.0
Stackmover, field to roadside	6.0
Stackmover, haul and store or feed	4.0**
Stacker, 3 ton	6.0
Stackmover, field to roadside	12.0
Stackmover, haul and store or feed	8.0**
Stacker, 6 ton	7.5
Stackmover, field to roadside	24.0
Stackmover, haul and store or feed	16.0**
Forage harvester, haylage or cornstalks:	
100 PTO hp tractor	11.0
125 PTO hp tractor	14.0
150 PTO hp tractor	16.0
Forage harvester, corn silage:	
1 row	11.0
2 row	24.0
3 row	32.0

\*\* All hauling assumes bales are moved one mile from field.

**Source:**

ISU Extension Pub # Pm-696. 1986. *Estimating field capacity of farm machines*. Authors: George Ayres & David Williams Former Extension, Agricultural Engineers, Iowa State University. Content reviewed 4/95 by Dr. Mark Hanna, Department of Agricultural and Biosystems Engineering, Iowa State University.

