

# MASTER FORAGE PROBE DENSITY CHARTS

1. Tables 1 & 2 provide recommended densities and a summary of core samples collected from 168 bunker silos by Holmes and Muck.
2. Take a core sample with the Master Forage Probe. Record the Fresh weight in grams and the hole depth in inches.
3. Refer to Table 3 to determine the "As Fed Density" in pounds per cubic foot.
4. Multiply "As Fed Density" by estimated or actual dry matter/100 to obtain the estimated or actual dry matter density of the sample.

**Example;** You have a corn silage bunk silo core sample with a fresh weight of 200 grams, a hole depth of 6 inches and an estimated D.M. of 31%. From Table 3, the "as fed" density is 46.2 pounds per cubic foot which is equivalent to a dry matter density of 14.2 pounds per cubic foot at 31% DM. ( $46.2 \times 0.31 = 14.2$ ). This value falls within the recommended range for corn silage shown in Table 1.

Bunk Silo	Density - lbs/ft <sup>3</sup>	
	As Fed	DM
Hay Crop Silage	35-43	14-15
Corn Silage	40-50	14-15

	Hay Crop Silage (n=87)			Corn Silage (n=81)		
	Ave.	Range	Std. Dev.	Ave.	Range	Std.Dev.
%DM	42.0	24-67	9.5	34.0	25-46	4.8
Wet Density (lb/ft <sup>3</sup> )	37.0	13-61	10.9	43.0	23-60	8.3
DM Density (lb/ft <sup>3</sup> )	14.8	6.6-27.1	3.8	14.5	7.8-23.6	2.9

**Table 3. As Fed Density**

Fresh Wt in Grams	100	125	150	175	200	225	250	275	300	325	350	375	400
Hole depth (inches)	<b>As Fed Density- Pounds per cubic foot - highlighted boxes indicate values fall within the desired range</b>												
4.0	34.7	43.3	52.0	60.7	69.4	78.0	86.7	95.4	104.0	112.7	121.4	130.0	138.0
4.5	30.8	38.5	46.2	53.9	61.6	69.4	77.1	84.8	92.5	100.2	107.9	115.6	123.3
5.0	27.7	34.7	41.6	48.5	55.5	62.4	69.4	76.3	83.2	90.2	97.1	104.0	111.0
5.5	25.2	31.5	37.8	44.1	50.4	56.7	63.0	69.4	75.7	82.0	88.3	94.6	100.9
6.0	23.1	28.9	34.7	40.5	46.2	52.0	57.8	63.6	69.4	75.1	80.9	86.7	92.5
6.5	21.3	26.7	32.0	37.3	42.7	48.0	53.3	58.7	64.0	69.4	74.7	80.0	85.4
7.0	19.8	24.8	29.7	34.7	39.6	44.6	49.5	54.5	59.4	64.4	69.4	74.3	79.3
7.5	18.5	23.1	27.7	32.4	37.0	41.6	46.2	50.9	55.5	60.1	64.7	69.4	74.0
8.0	17.3	21.7	26.0	30.3	34.7	39.0	43.3	47.7	52.0	56.4	60.7	65.0	69.4
8.5	16.3	20.1	24.5	28.6	32.6	36.7	40.8	44.9	49.0	53.0	57.1	61.2	65.3
9.0	15.4	19.3	23.1	27.0	30.8	34.7	38.5	42.4	46.2	50.1	53.9	57.8	61.6
9.5	14.6	18.3	21.9	25.6	29.2	32.9	36.5	40.2	43.8	47.5	51.1	54.8	58.4
10.0	13.9	17.3	20.8	24.3	27.7	31.2	34.7	38.1	41.6	45.1	48.5	52.0	55.5
10.5	13.2	16.5	19.8	23.1	26.4	29.6	33.0	36.3	39.6	42.9	46.2	49.5	52.8
11.0	12.6	15.8	18.9	22.1	25.2	28.4	31.5	34.7	37.8	41.0	44.1	47.3	50.4
11.5	12.1	15.1	18.1	21.1	24.1	27.1	30.2	33.2	36.2	39.2	42.2	45.2	48.3
12.0	11.6	14.5	17.3	20.2	23.1	26.0	28.9	31.8	34.7	37.6	40.5	43.4	46.2

# MASTER FORAGE PROBE WORK SHEET

<b>FARM</b>		
<b>DATE</b>	<b>CONTACT</b>	<b>PHONE / E-MAIL</b>
<b>SILO ID</b>		
<b>FORAGE</b>		
<b>FOLLOW UP NEEDED</b>		

CORE #	LOCATION & COMMENTS	Fresh Wt Grams	Core Depth Inches	As Fed Density lbs/ft <sup>3</sup> from Table 3	% DM (estimated or actual)	DM Density lbs/ft <sup>3</sup>
1						
2						
3						
4						
5						
6						
7						
8						
9						
			<b>Average</b>			
			<b>Goal</b>			

### DM Density Calculation

- DM density = As Fed Density x (DM/100)
- For example; As Fed Density = 44 lbs per cubic foot with a dry matter of 31%
- DM Density = 44 x (31/100) or 44 x .31 = 13.64 lbs per cubic foot
- 13.64 is just below the optimum DM density for corn silage or hay crop silage.