Yield Estimates Based on Forage Moisture

15% moisture hay equivalent					0% moisture oven dry*			75%			50%			30%		
Ton/ac	lbs/ac	lbs/ft2	lbs/hoop	g/hoop	Ton/ac	lbs/hoop	g/hoop	Ton/ac	lbs/hoop	g/hoop	Ton/ac	lbs/hoop	g/hoop	Ton/ac	lbs/hoop	g/hoop
0.25	500	0.01	0.05	20.7	0.21	0.04	17.57	0.85	0.15	70.28	0.43	0.08	35.14	0.28	0.05	23.43
0.5	1000	0.02	0.09	41.3	0.43	0.08	35.14	1.70	0.31	140.55	0.85	0.15	70.28	0.57	0.10	46.85
0.75	1500	0.03	0.14	62.0	0.64	0.12	52.71	2.55	0.46	210.83	1.28	0.23	105.42	0.85	0.15	70.28
1	2000	0.05	0.18	82.7	0.85	0.15	70.28	3.40	0.62	281.11	1.70	0.31	140.55	1.13	0.21	93.70
1.25	2500	0.06	0.23	103.3	1.06	0.19	87.85	4.25	0.77	351.39	2.13	0.39	175.69	1.42	0.26	117.13
1.5	3000	0.07	0.27	124.0	1.28	0.23	105.42	5.10	0.93	421.66	2.55	0.46	210.83	1.70	0.31	140.55
1.75	3500	0.08	0.32	144.7	1.49	0.27	122.99	5.95	1.08	491.94	2.98	0.54	245.97	1.98	0.36	163.98
2	4000	0.09	0.36	165.4	1.70	0.31	140.55	6.80	1.24	562.22	3.40	0.62	281.11	2.27	0.41	187.41
2.5	5000	0.11	0.46	206.7	2.13	0.39	175.69	8.50	1.55	702.77	4.25	0.77	351.39	2.83	0.52	234.26
3	6000	0.14	0.55	248.0	2.55	0.46	210.83	10.20	1.86	843.33	5.10	0.93	421.66	3.40	0.62	281.11
3.5	7000	0.16	0.64	289.4	2.98	0.54	245.97	11.90	2.17	983.88	5.95	1.08	491.94	3.97	0.72	327.96
4	8000	0.18	0.73	330.7	3.40	0.62	281.11	13.60	2.48	1124.44	6.80	1.24	562.22	4.53	0.83	374.81

*Use 0% moisture columns when oven drying to calibrate and improve your field estimates.

Assumptions & Calculations:

Area of hoop = 3.97 ft^2

1 lb = 454 g

Area of Hula hoop = πr^2

Our hula hoop radius = 13.5inches

3.14 x 13.5" x 13.5" = 572 $inches^2$

1 ft^2 = 144 $inches^2$

572/ 144 = 3.97 ft^2

Calculating % DM & Moisture:

$$\% \text{ Dry Matter} = \frac{\text{final weight} \times 100}{\text{initial wet weight}}$$

% moisture = 100 - % Dry Matter

References:

Gay, Susan W. 2009 Determining Forage Moisture Concentration. Virginia Cooperative Extension Pub. 442-106

www.ext.vt.edu

Orioff, Steve B. & Shannon C. Mueller. Harvesting, Curing & Preservation of Alfalfa. Ch 14 in Irrigated Alfalfa Management. Univ of California