

TECHNICAL NOTES

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SOIL CONSERVATION SERVICE

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The following information is taken from TN-RANGE NV-4 (Rev. 2) issued February 1971 by the Nevada State Office. It is a useful guide for selecting, sampling and measuring plots on farm crops as well as range.

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DETERMINING TOTAL ANNUAL YIELDS

The following procedures outline a method for determining total annual yields using plots 96 square feet in area or fraction thereof, which readily converts gram weights to pounds per acre. The size and number of plots used for sampling should be selected in accordance with the density and size of plants to be sampled.

Ten 9.6 square foot plots are a better sample than one 96 square foot plot. Plots may be round, square, or oblong to best fit equipment at hand or the forage to be sampled.

The following chart gives the most commonly used plot sizes:

Plot Area in Square Feet	Factor to Convert Grams to Pounds Per Acre	Diameter of Circular Plots	Sides of Square Plots
96.0	1	11.05 feet	9.8 feet
9.6	10	41.94 inches	37.2 inches
4.8	20	29.65 inches	26.3 inches
2.4	40	20.95 inches	18.6 inches
0.96	100	13.23 inches	11.7 inches

If desired, a segment of a row can be measured, the length depending on the row spacing. This assumes that each row occupies half the space between rows. Thus, to get a 9.6 square foot plot in a 14 inch row space, a row segment of 8.2 would be used; of for an 18 inch row spacing, a row segment of 6.4 feet would make 9.6 square feet.

Row segments required for common row spacing of forage and field crops are shown in the table below. The table also provides for weights in ounces or pounds.

Row Spacing (inches)	Row Feet Per Acre	Linear Feet of Row Segment Needed to Determine Pounds Per Acre if Clipped and Weighed in:		
		Grams (Multiply X 10)	Pounds (Multiply X 1000)	Ounces (Multiply X 100)
6	87120	19.2	87.1	54.5
7	74674	16.5	74.4	46.7
10	52272	11.5	52.3	32.7
12	43560	9.6	43.6	27.2
14	37337	8.2	37.3	23.3
18	29040	6.4	29.0	18.2
21	24891	5.5	24.9	15.6
22	23764	5.2	23.7	14.7
24	21780	4.8	21.8	13.6
28	18695	4.1	18.7	11.7
30	17424	3.9	17.4	10.9
32	16315	3.6	16.3	10.2
34	15392	3.4	15.4	9.6
36	14520	3.2	14.5	9.1
38	13754	3.0	13.8	8.6
40	13081	2.9	13.1	8.2
42	12445	2.8	12.5	7.8

Sampling Procedure

Yields should be determined by soil taxonomic unit. Do not average production from different soils within a field or pasture. If the yield for a field is needed, sample each taxonomic unit, then compute the weighted yield after determining the acreage in each unit.

Many sampling procedures are acceptable but they must be based on random sampling of plots. Do not attempt short cuts by trying to pick an average plot to represent a unit or field.

Form Nev-RANGE-2 was made for use in Nevada, employing the double-sampling technique; instructions for use are on the back of the form and in Section 4 of the National Handbook for Range and Related Grazing Land. This procedure should be used for determining yields of natural or seeded areas of range or pasture. Exceptions to this would be sampling of seedings with row-space wider than about 14 inches, or enclosures or other seedings too small for random sampling. In these instances, row segments should be sampled.

Important key points to follow:

1. Determine yields for single soil taxonomic units.
2. Determine total annual yield as defined in Section 4 of the Range Handbook. Consider all plants, including trees.
3. Clip and estimate herbaceous plants to ground level, current annual growth of leaves, twigs and fruits of shrubs and trees.
4. Convert all weights to air-dry basis.
5. Obtain yields as near to the end of the growing season as possible.
6. Make a notation on Nev-RANGE-2 if you find an area near its potential.
7. Plant residues such as straw mulch can be measured by using the same techniques.