APPENDIX A

INDEX TO SMALL GRAIN EQUIVALENT CHARTS

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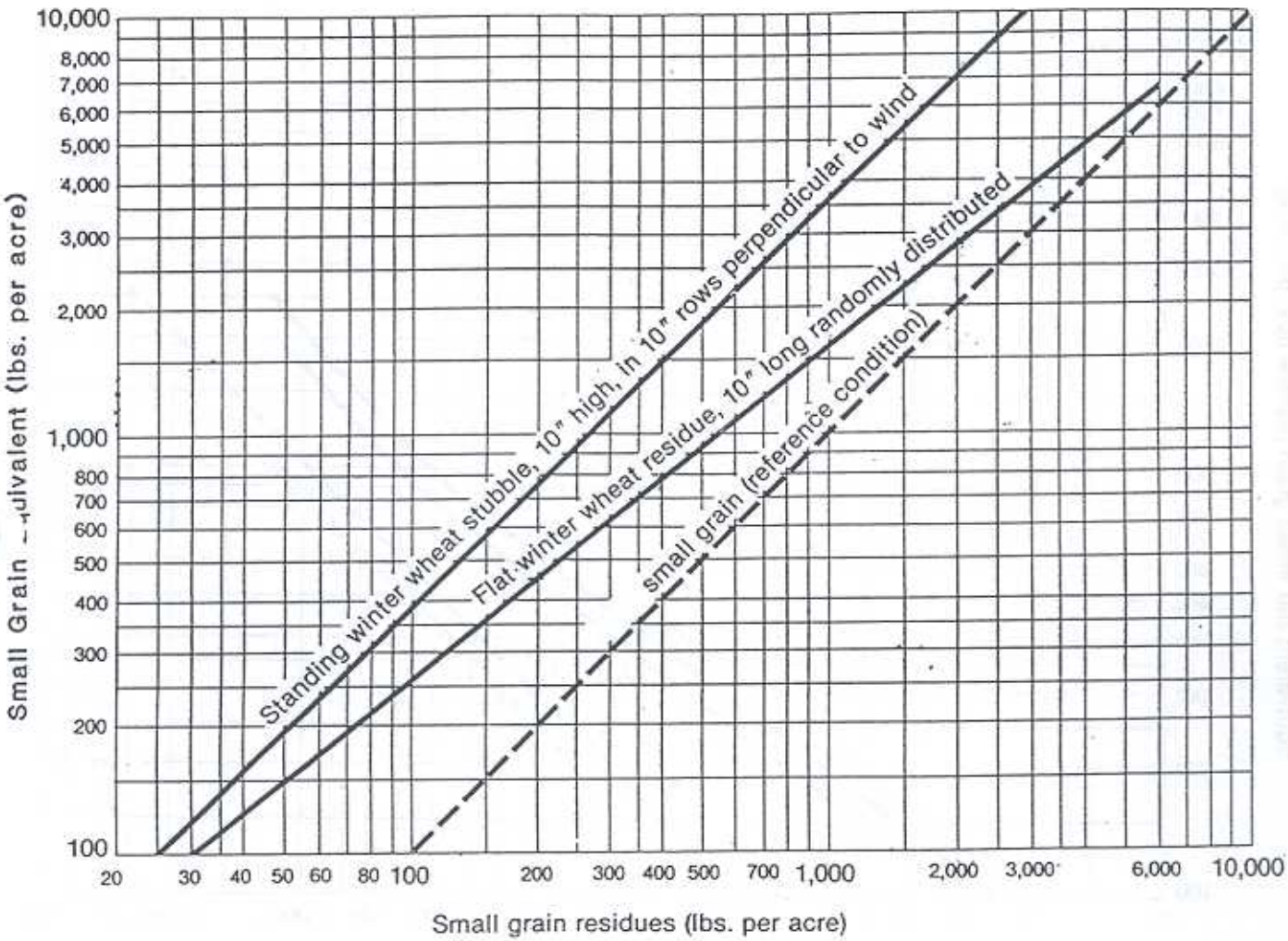
Chart 4(1)

1985

Small Grain Equivalents of Small Grain Residues

(Use for wheat, barley, rye and oats)



Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

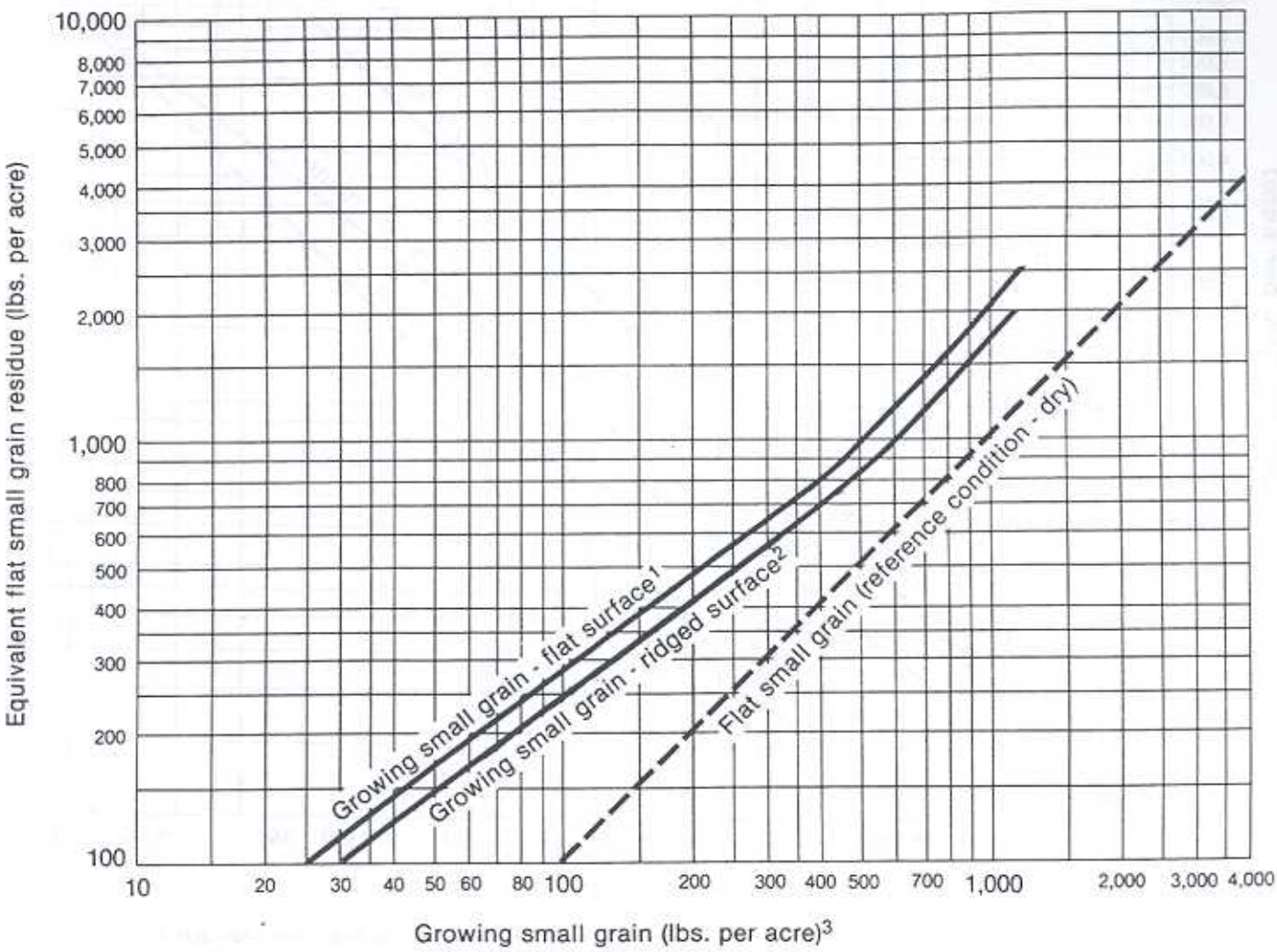
Source: Lyles and Allison—Trans. ASAE 1981, 24 (2): 405-408.

Residues are washed, air dried, and placed as described for wind tunnel tests.

Chart 4(2)

1985

Flat Small Grain Equivalents of Growing Small Grain



Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Sources

[1] Siddoway, F.H., W.S. Chepil, and D.V. Armbrust 1965

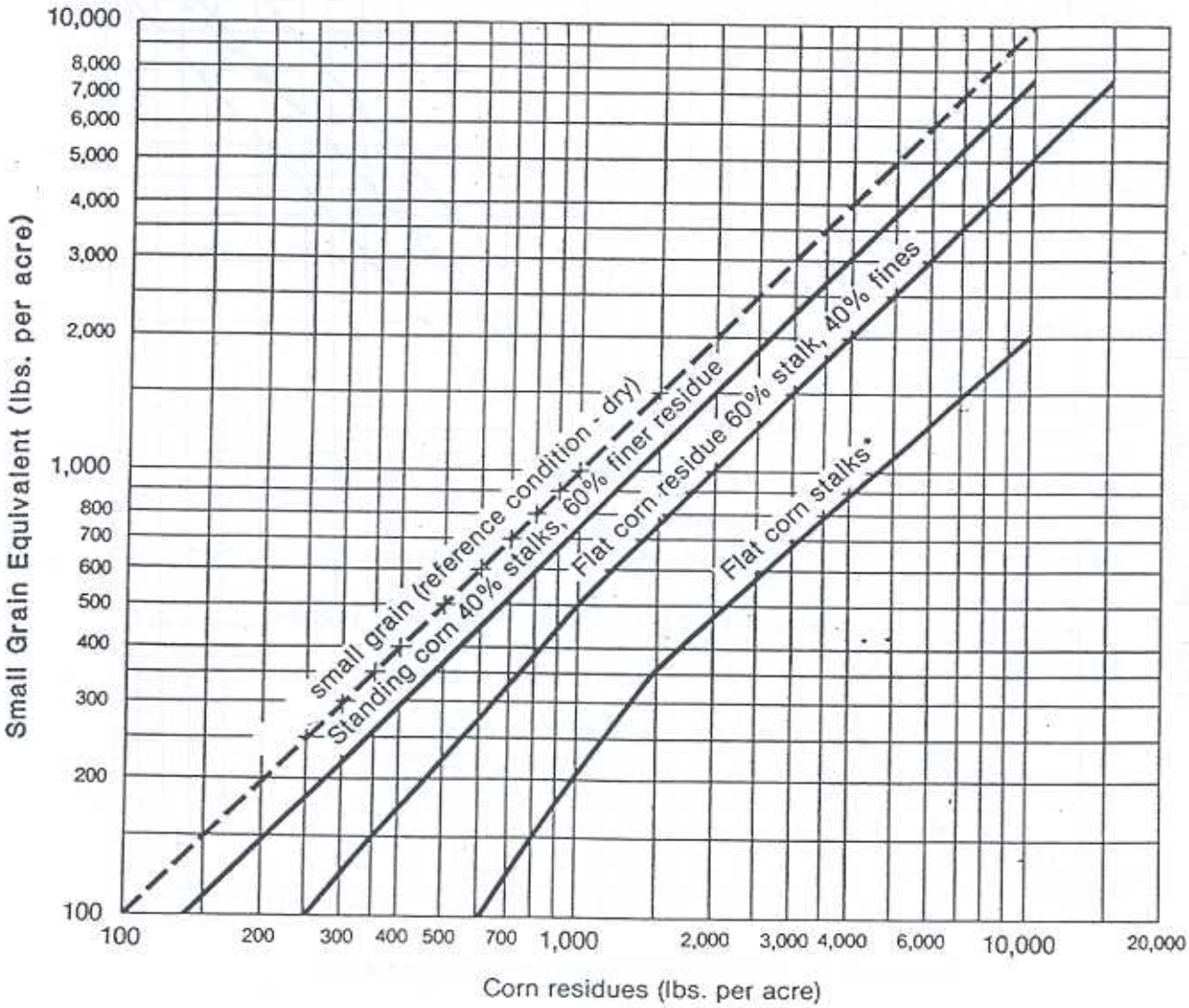
[2] Estimates by Best Judgement of SCS Personnel.

[3] Air-dry weights of growing winter wheat from emergence to winter dormancy.

Chart 4(3)

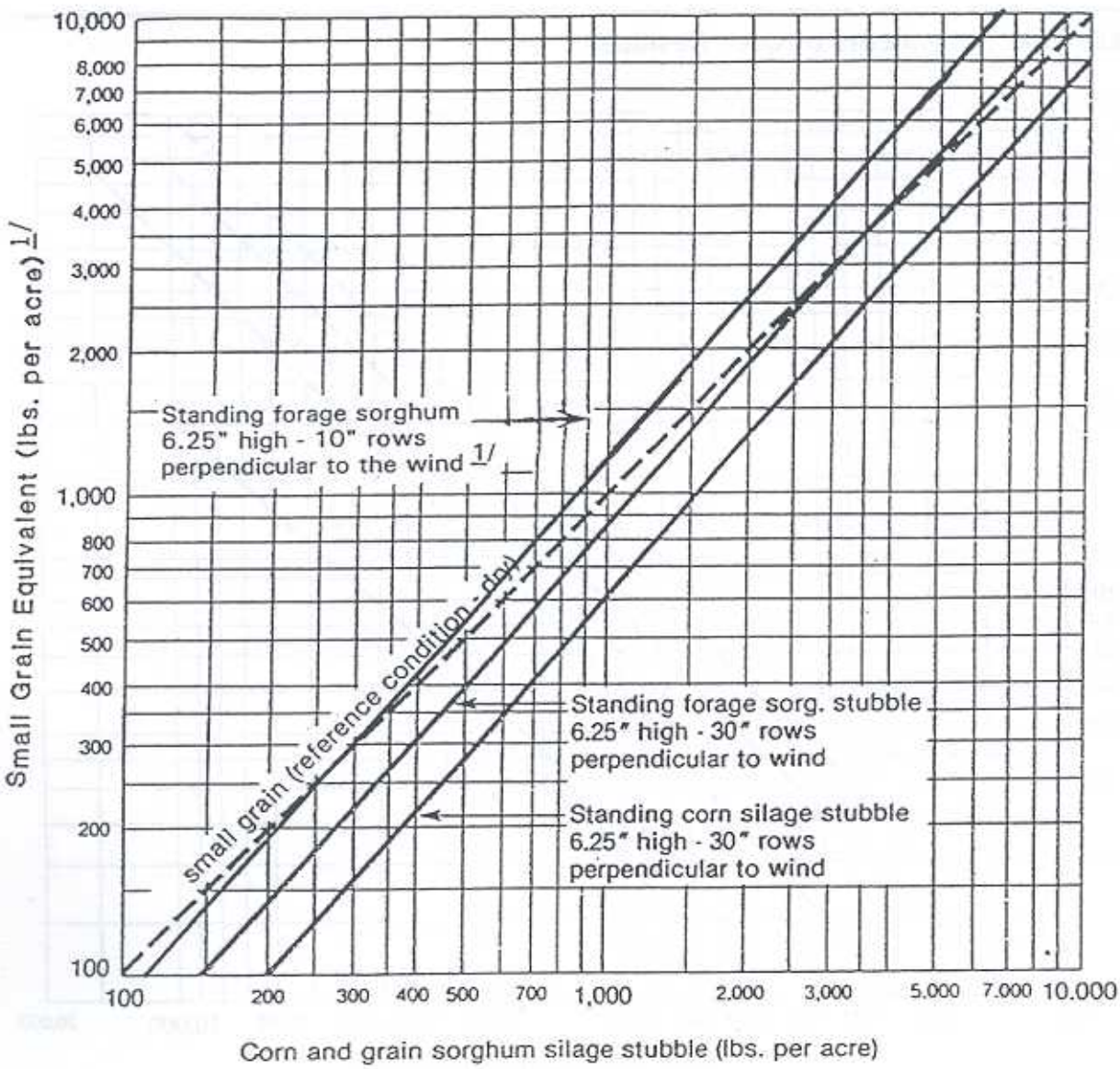
1985

Small Grain Equivalents of Corn Residues



Source*: Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408. (Flat to 2,000 lbs. standing to 3,500 lbs. Extended by SCS.)

Small Grain Equivalents of Corn and Grain Sorghum Silage Stubble



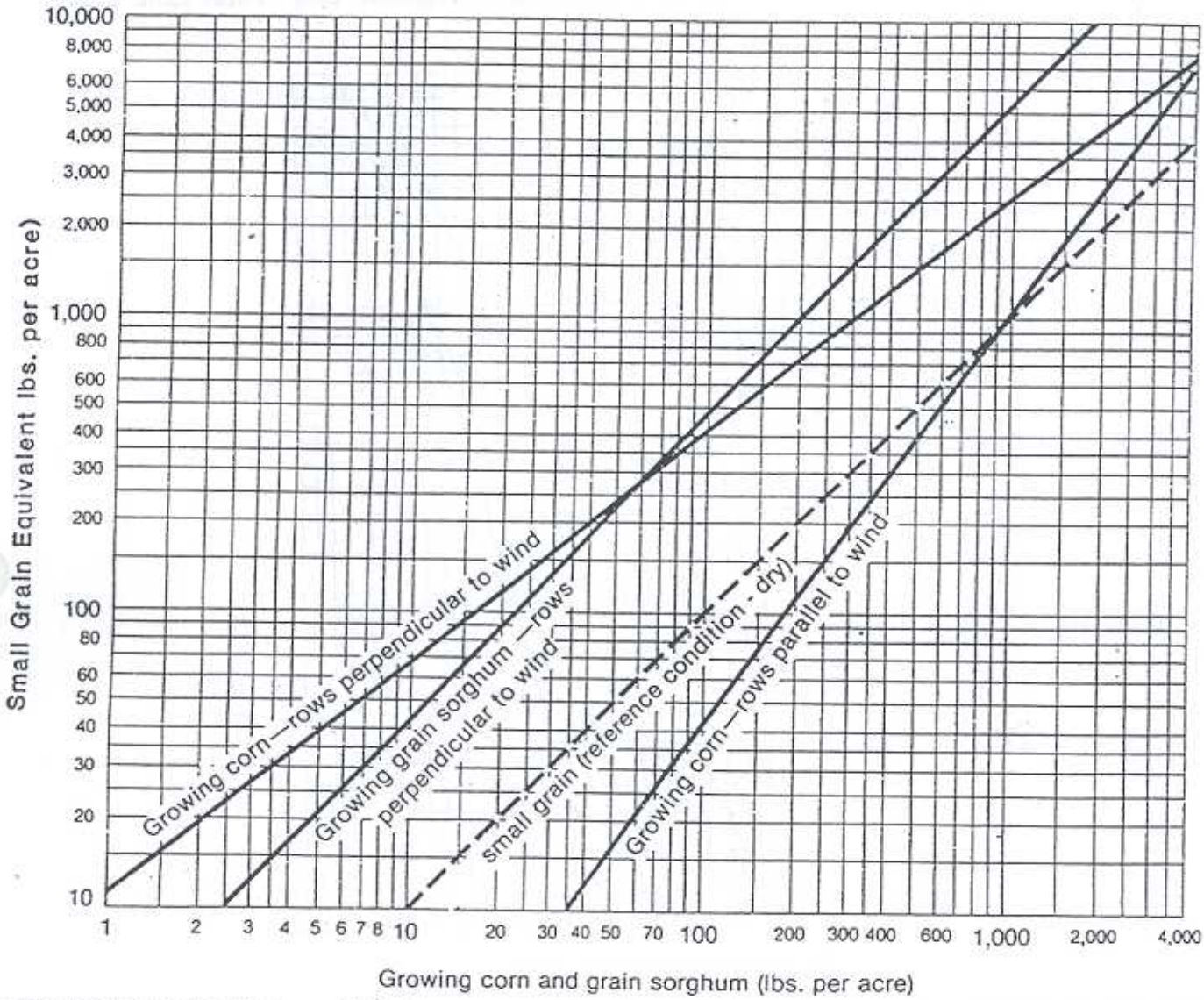
Source: Lyles and Allison, Trans, ASAE 1981, 24(2): 405-408.
Residue weights are washed, air dried, and placed as described for wind tunnel tests.

1/ Field Experience in the Northern Plains indicates the ratio of residue to grain is higher when crops, such as forage sorghum, are grown in narrow row seedings. Research is not available at this time to confirm this observation. Until research is available, the residue production values may be increased 30 percent when crops are planted in rows less than 20 inches apart. The line for standing forage sorghum 6.25" high - 10" rows includes an increase of 30 percent over the values for 30" rows.

Chart 4(5)

1985

Small Grain Equivalents of Growing Corn and Grain Sorghum

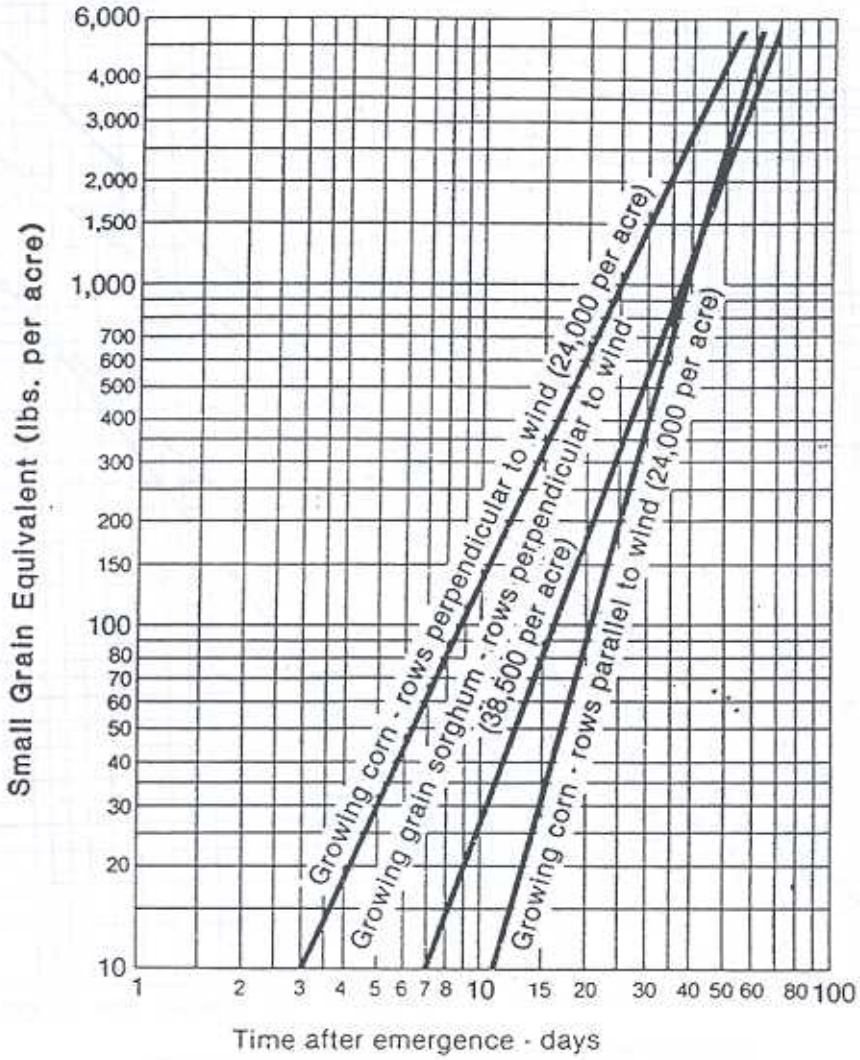


Source: Armbrust & Lyles, 1984 - unpublished

Chart 4(6)

1985

Small Grain Equivalents of Growing Corn and Grain Sorghum, Days After Emergence

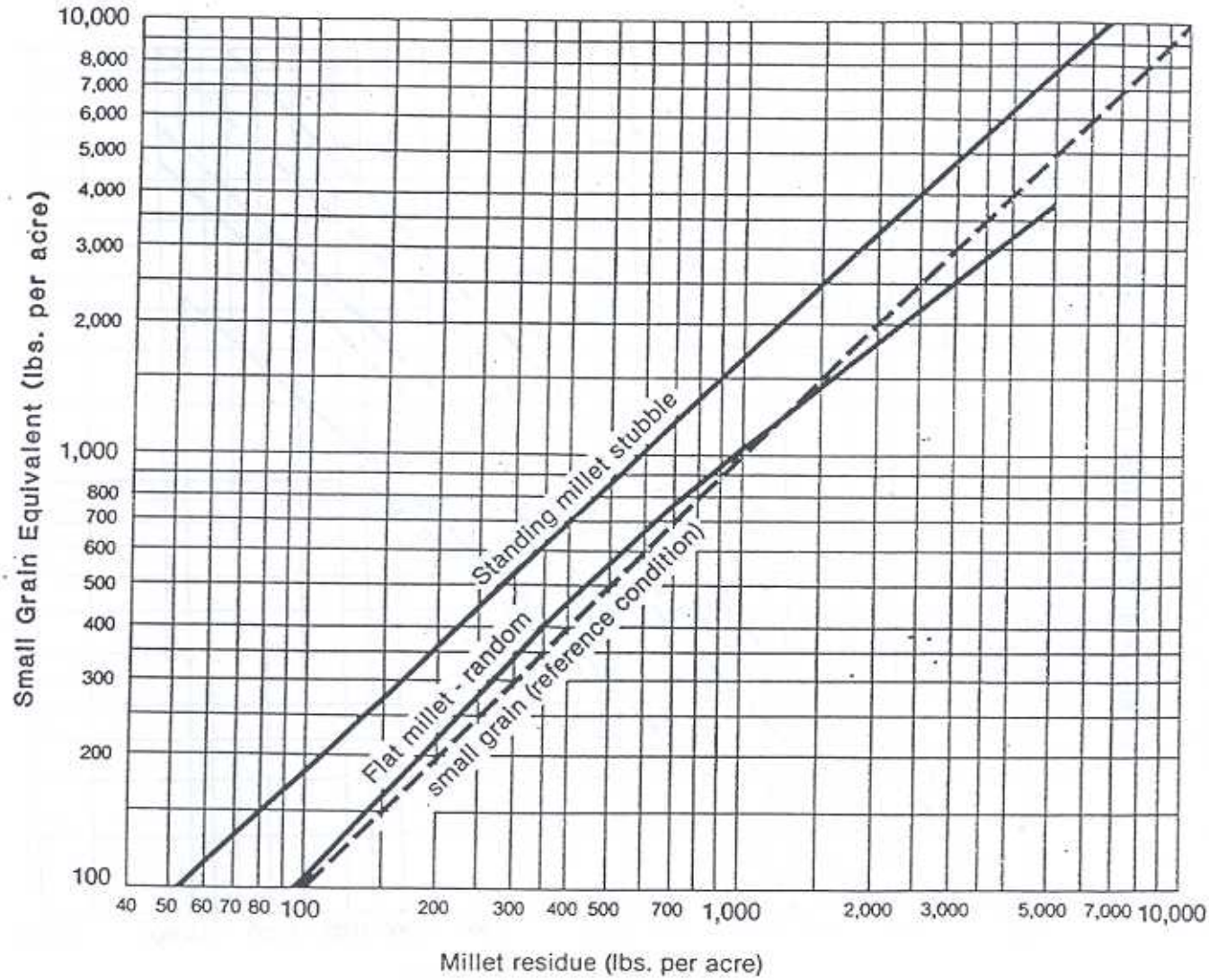


Source: Armbrust & Lyles, 1984-unpublished.

Chart 4(7)

1985

Small Grain Equivalents of Millet



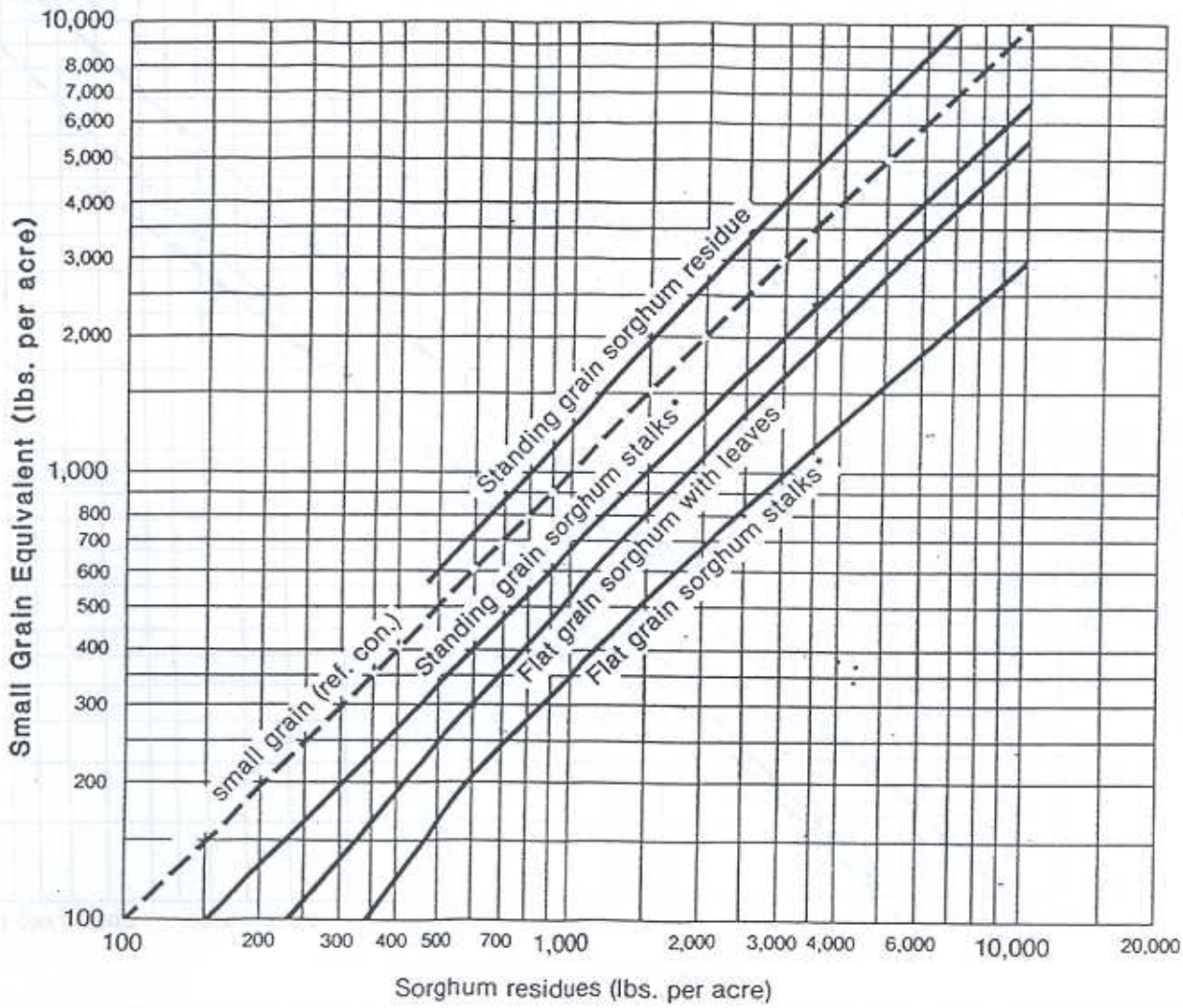
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Leon Lyles, ARS, memorandum, Jan. 25, 1985

Chart 4(8)

1985

Small Grain Equivalents of Sorghum Residues

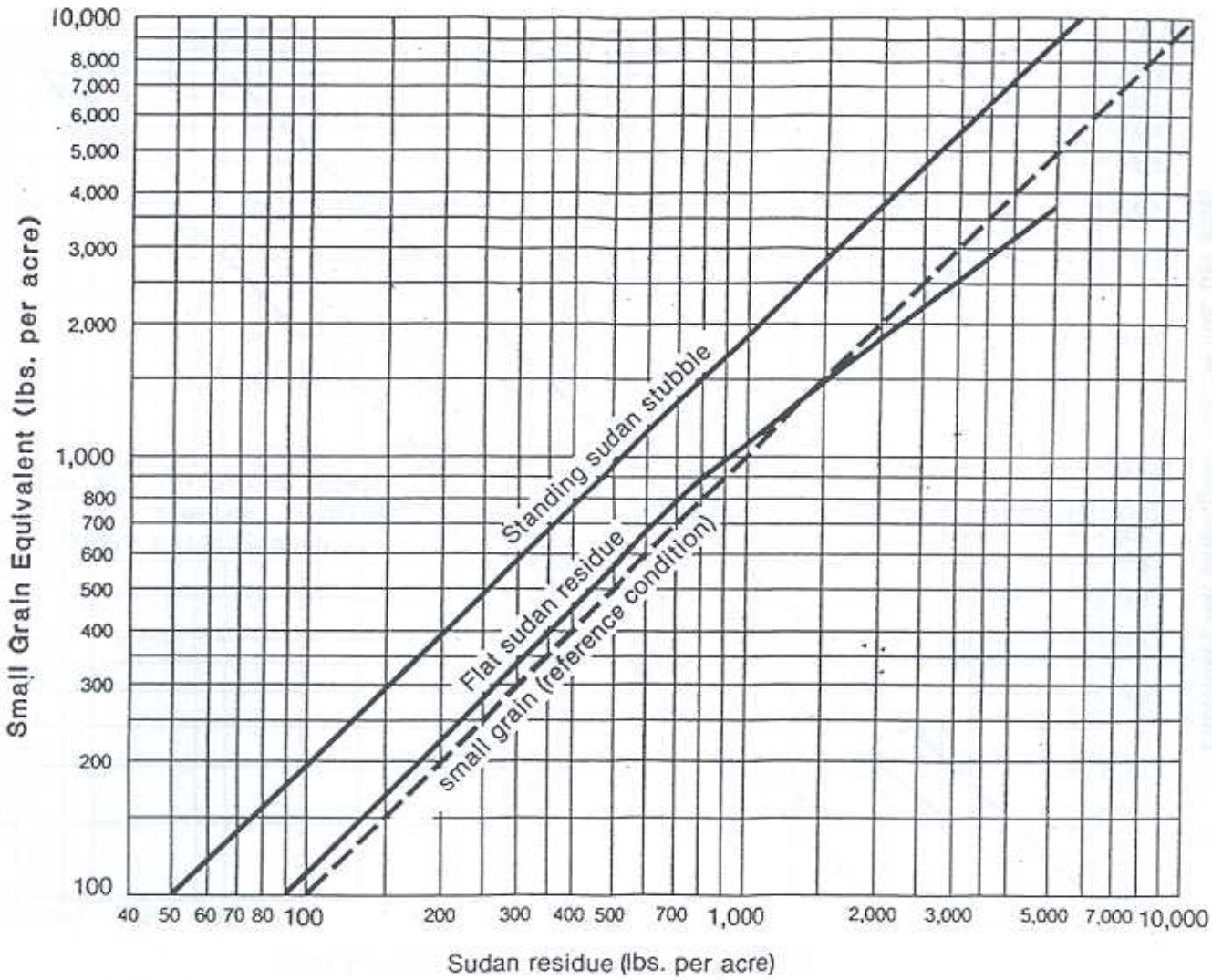


Source*: Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408. (Flat to 2500 lbs. standing stalks to 3500 lbs.) Leafy residue estimates by SCS North Central agronomists, 11/84.

Chart 4(9)

1985

Small Grain Equivalents of Sudan Grass



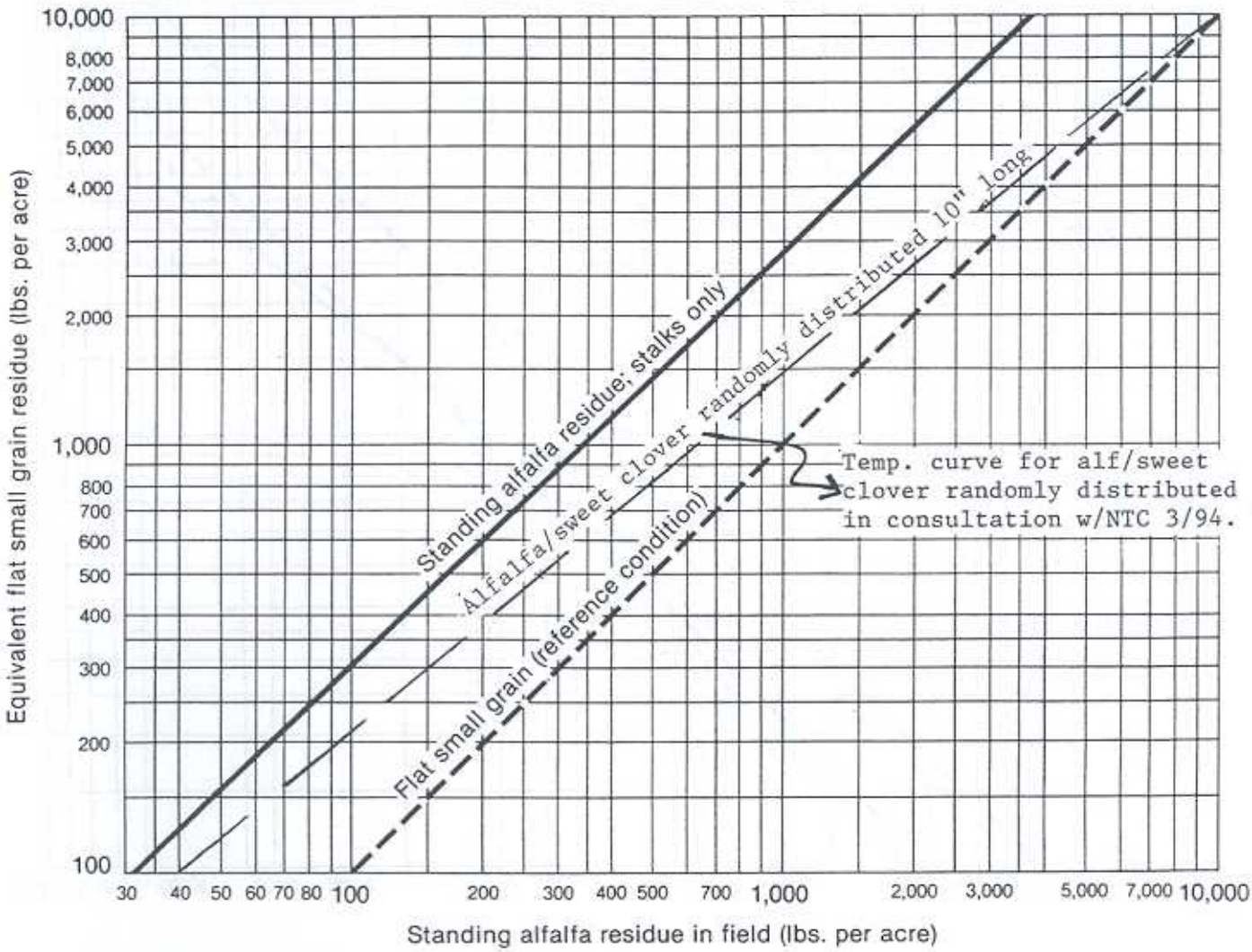
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Leon Lyles, ARS, memorandum, Jan. 25, 1985.

Chart 4(10)

1985

Flat Small Grain Equivalents of Alfalfa Residues

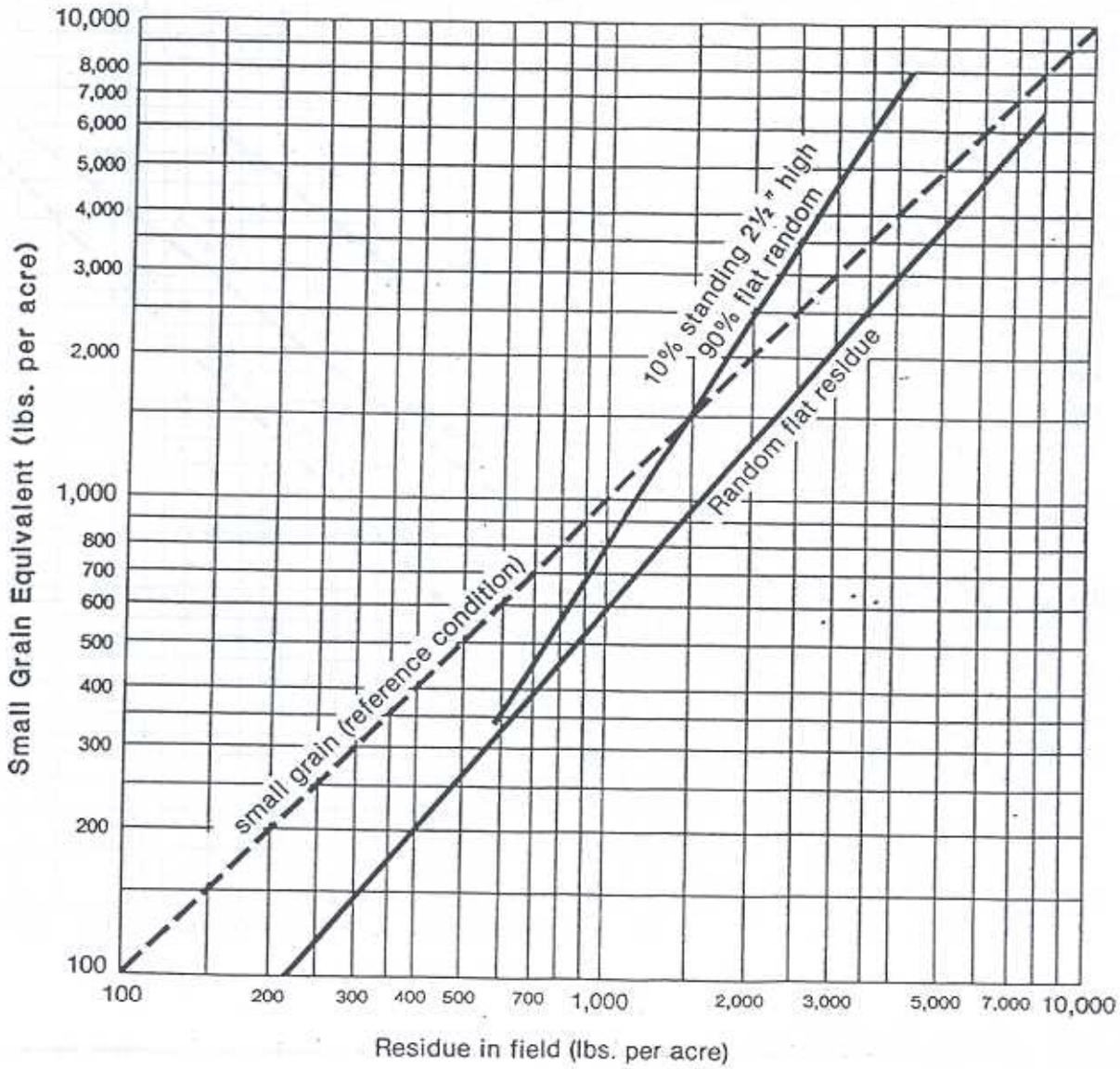


Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.
Source: Unpublished coefficients provided by Leon Lyles, ARS, Wind Erosion Research Unit, Manhattan, KS.

Chart 4(11)

1985

Small Grain Equivalents
Dry Bean, Lentil, *Soybean, & Winter Pea Residues



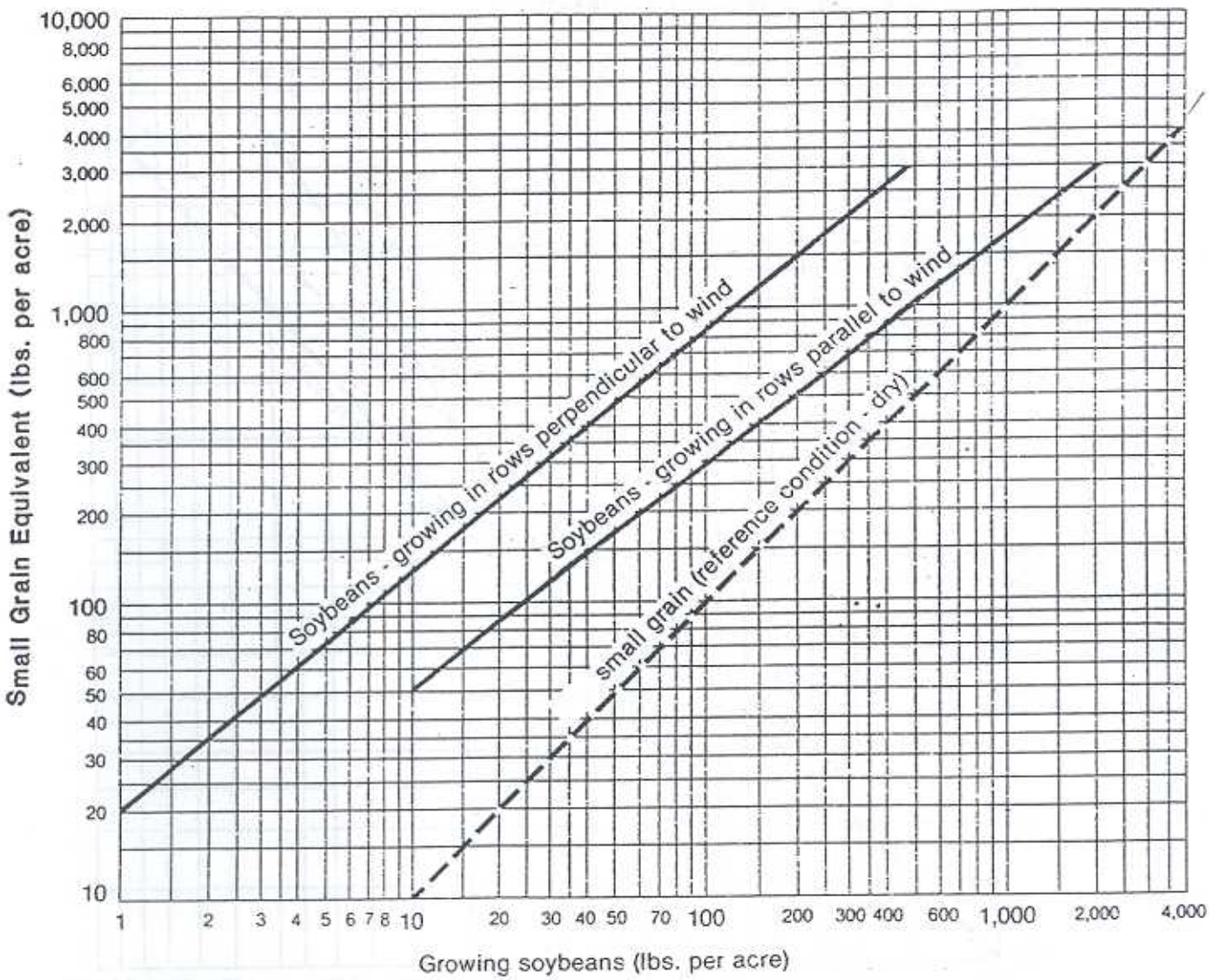
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Best Judgement Estimates by SCS. North Central Agronomists, 11/84.
*Soybeans - Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408.

Chart 4(12)

1985

Small Grain Equivalents of Growing Soybeans

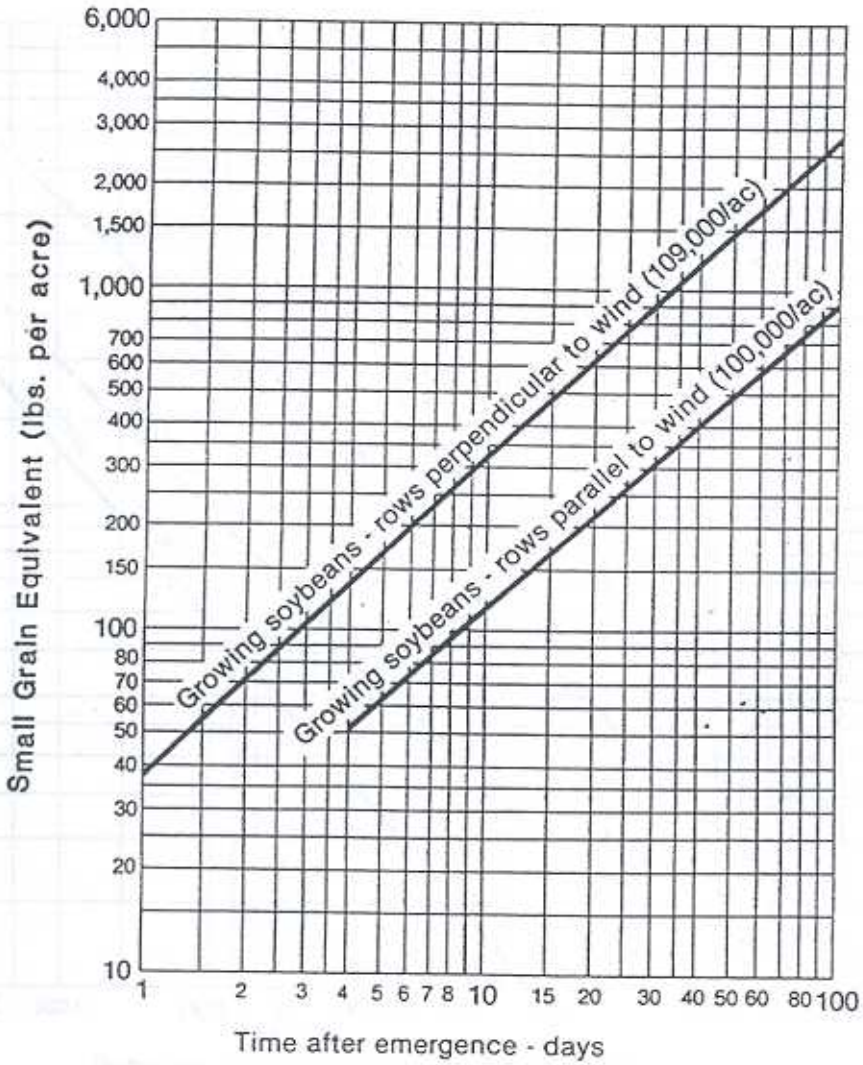


Source: Armbrust & Lyles. 1984-unpublished.

Chart 4(13)

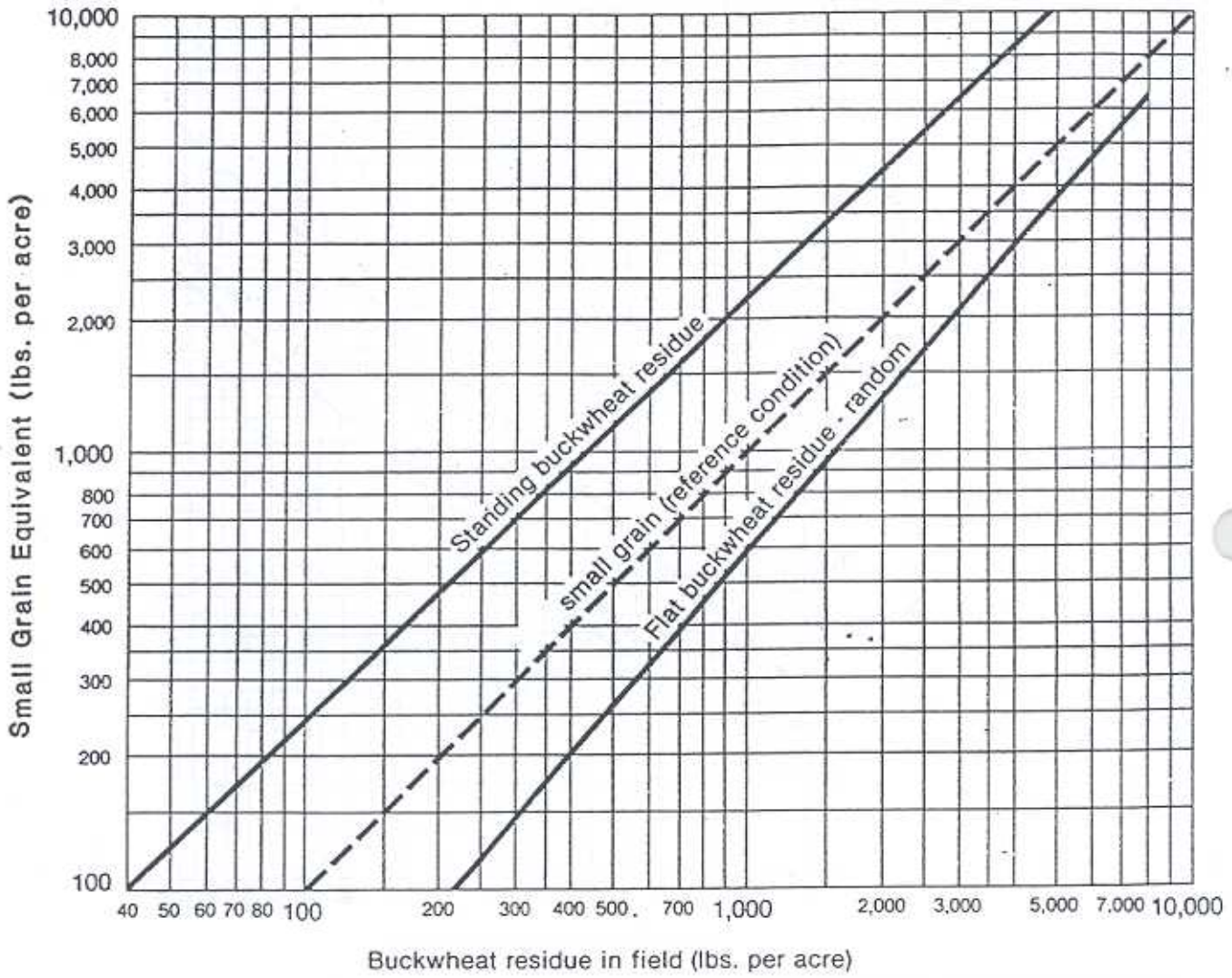
1985

Small Grain Equivalents of Growing Soybeans - Days After Emergence



Source: Armbrust & Lyles, 1984-unpublished.

Small Grain Equivalents Buckwheat Residue



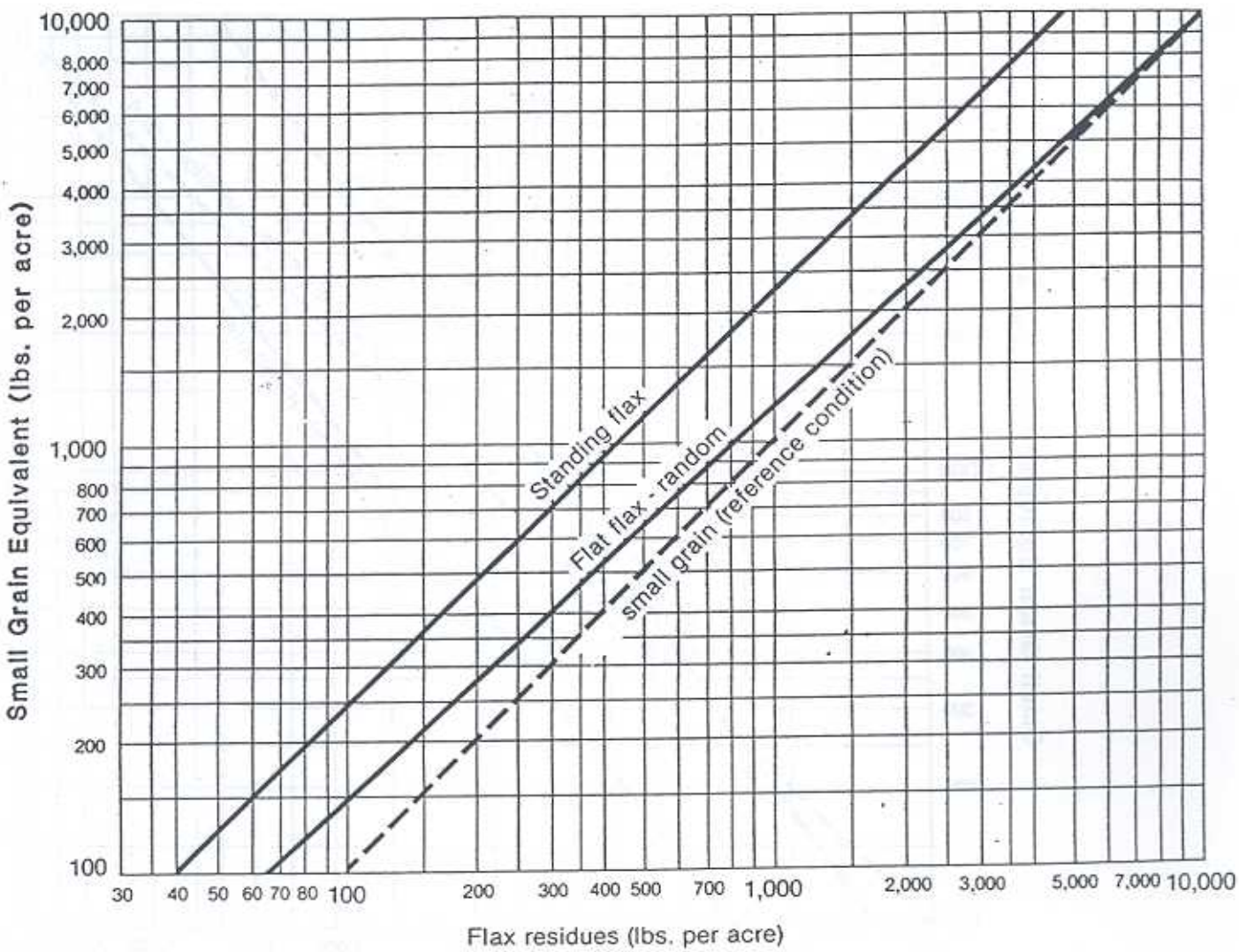
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Best Judgement Estimates by SCS. North Central Agronomists, 11/84.

Chart 4(15)

1985

Small Grain Equivalents of Flax Residues



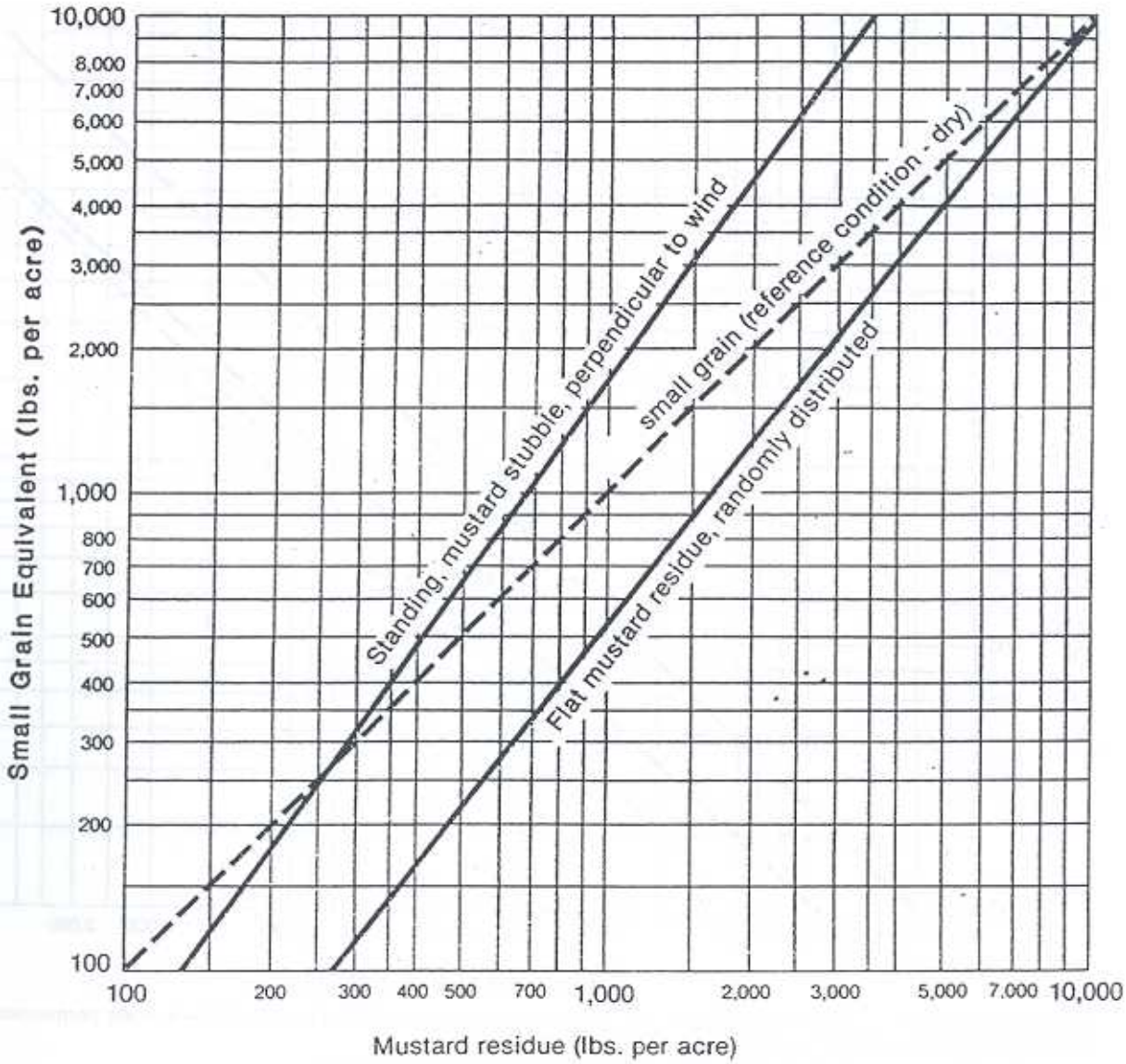
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Best Judgement Estimates by SCS. (North Central Agronomists, 11/84).

Chart 4(16)

1985

Small Grain Equivalent Mustard Residue

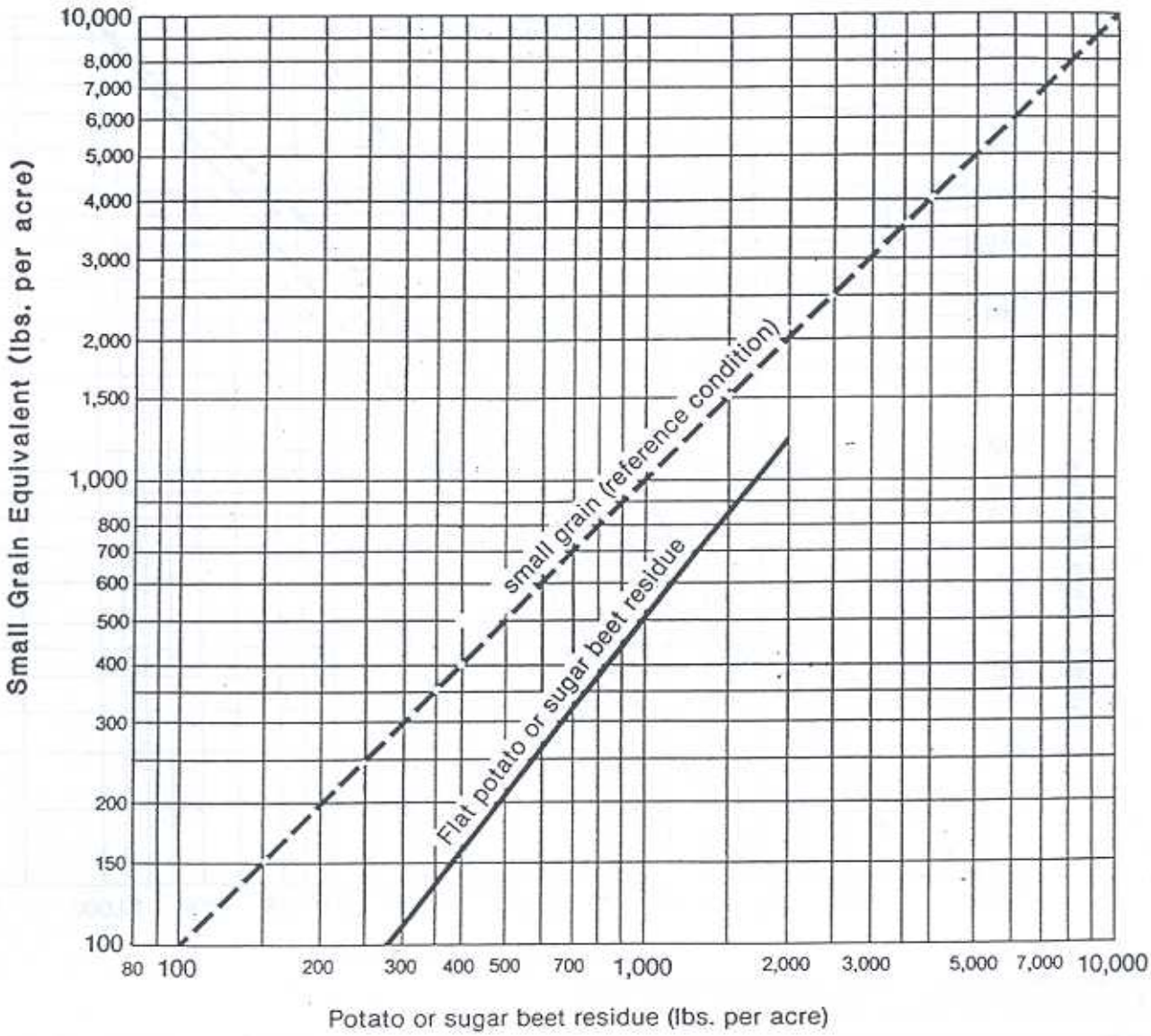


Source: Best Judgement Estimates by SCS. Western Agronomists, 1983.

Chart 4(17)

1985

Small Grain Equivalents of Potato and Sugar Beet Residue



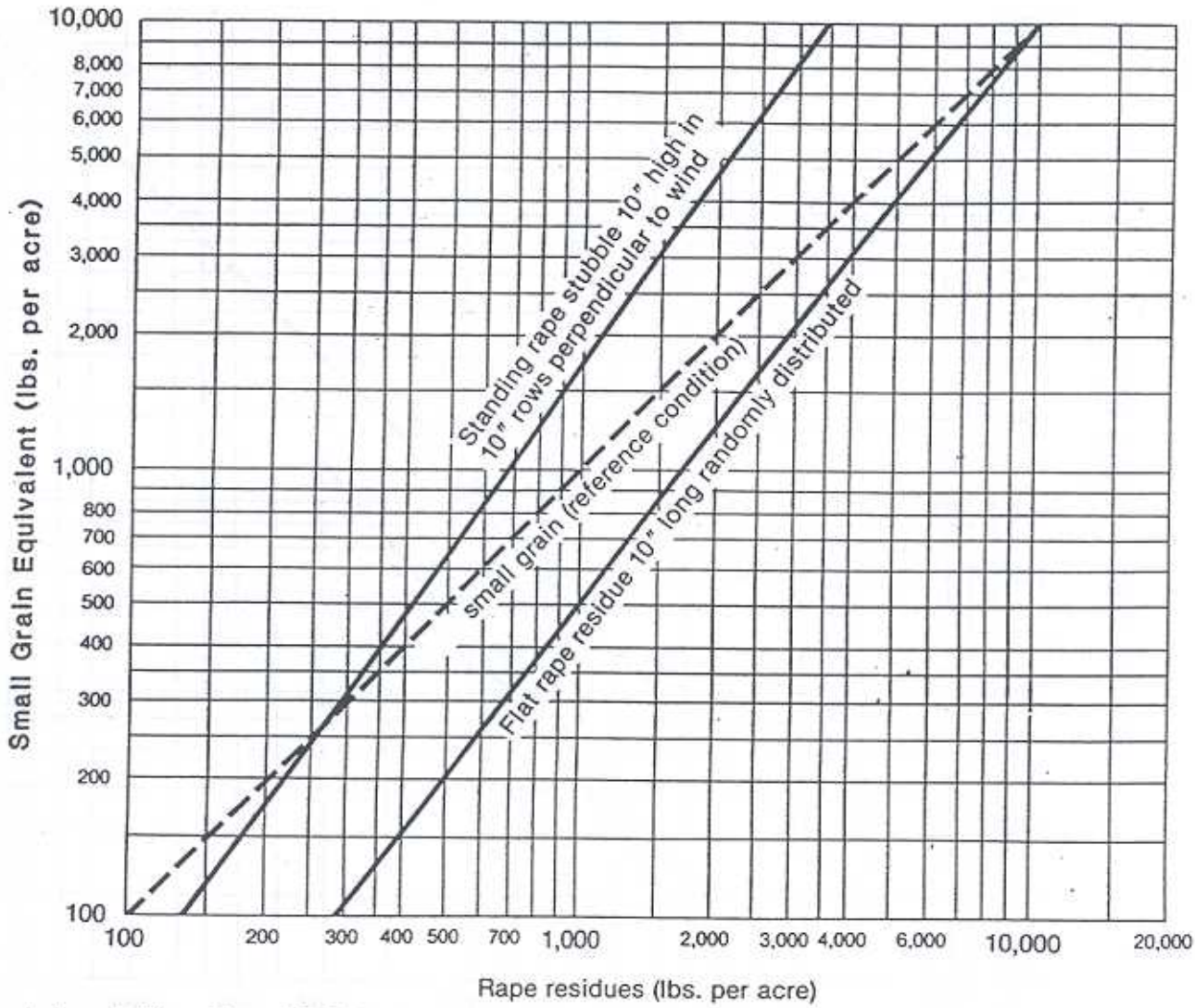
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Best Judgement Estimates by SCS, North Central Agronomists, 11/84.

Chart 4(18)

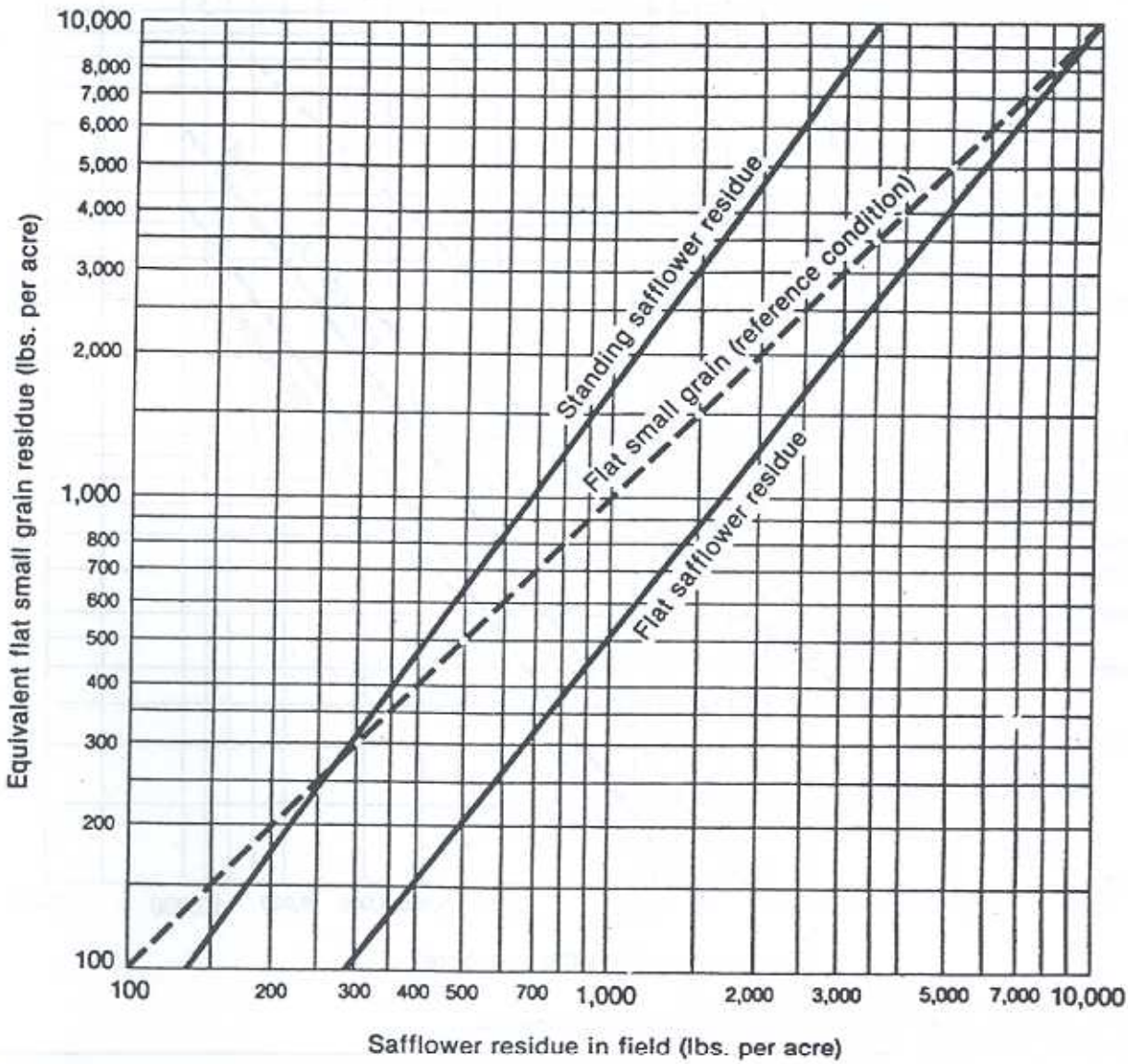
1985

Small Grain Equivalents of Rape Residues



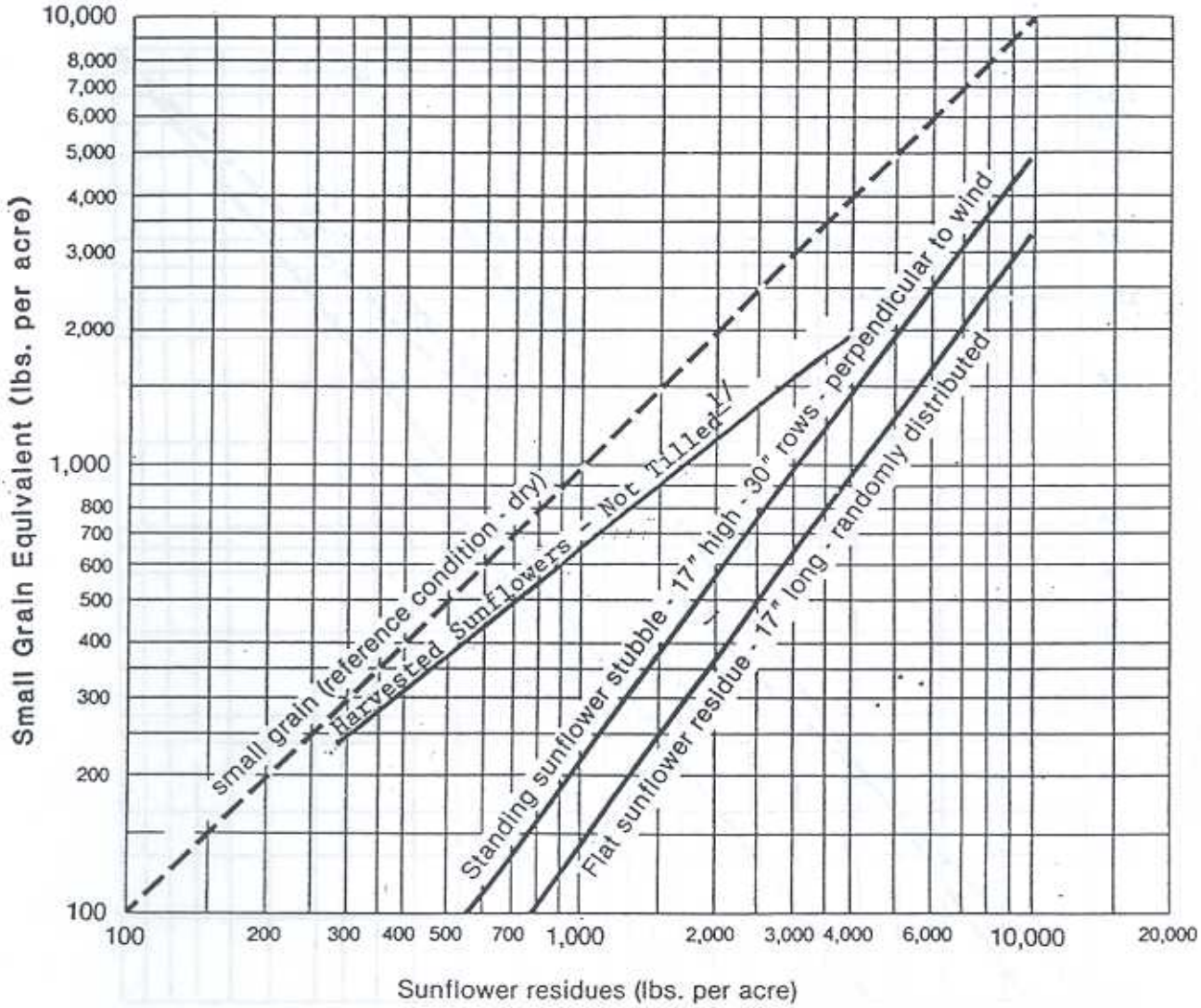
Source: Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408.
Residue wts. are washed, air dried and placed as described.

Flat Small Grain Equivalents Safflower Residue



Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.
Source: Best Judgement Estimates by SCS, North Central Agronomists, 11/84.

Small Grain Equivalents of Sunflower Residues



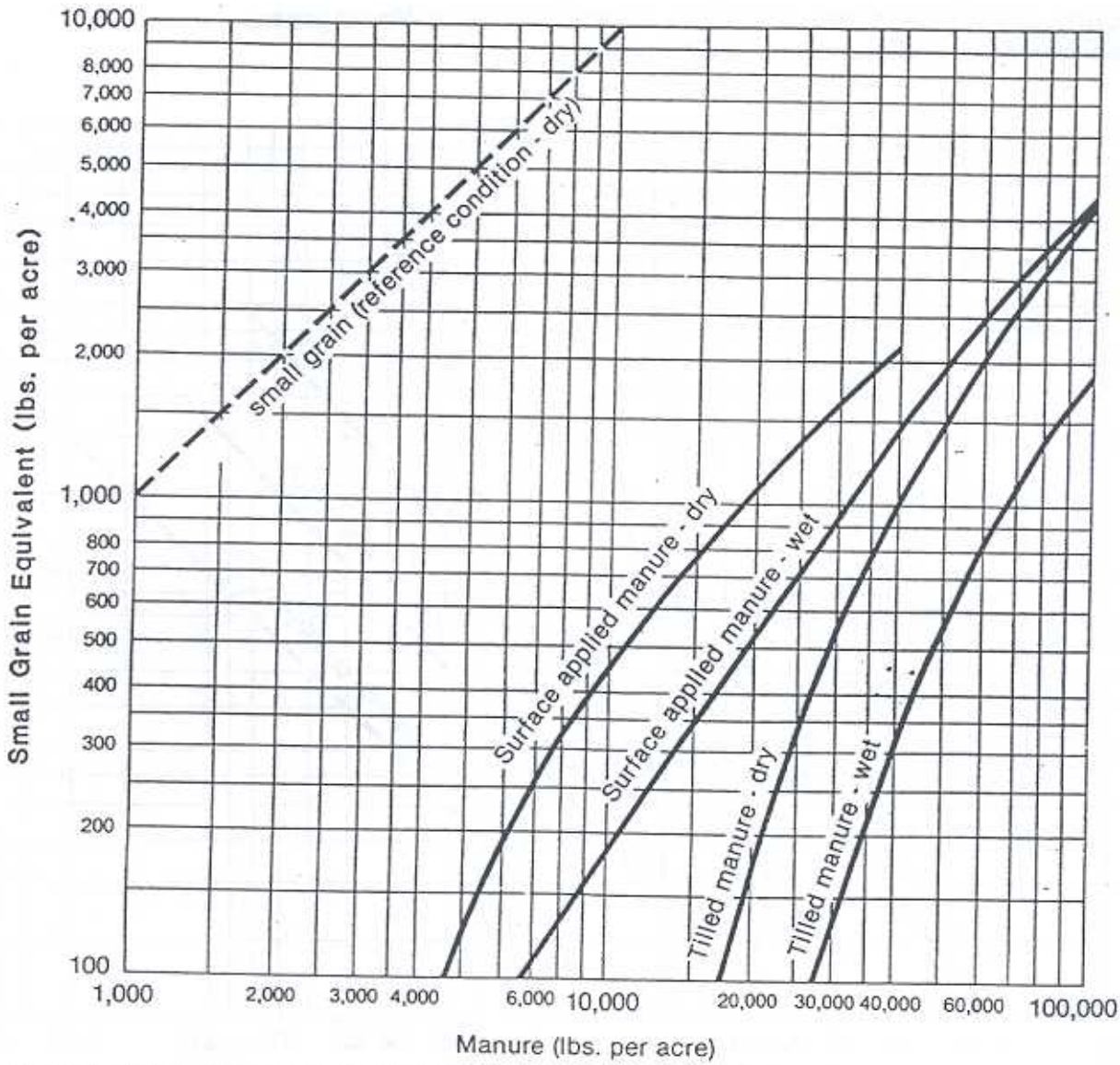
Source: Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408.
Residue wts. are washed, air dried, and placed as described for wind tunnel test.

1/ Twenty-five percent flat sunflower stalks (17" long randomly distributed), 37.5% standing sunflower stalks (17" high - 30 rows - perpendicular to wind), 37.5% flat fine sunflower residue. Used fines curve developed by North Dakota work group 8/87, in combination with previously developed standing and flat sunflower stalk curves. Percents of various components are best judgment estimate by South Dakota work group.

Chart 4(21)

1985

Small Grain Equivalent of Manure



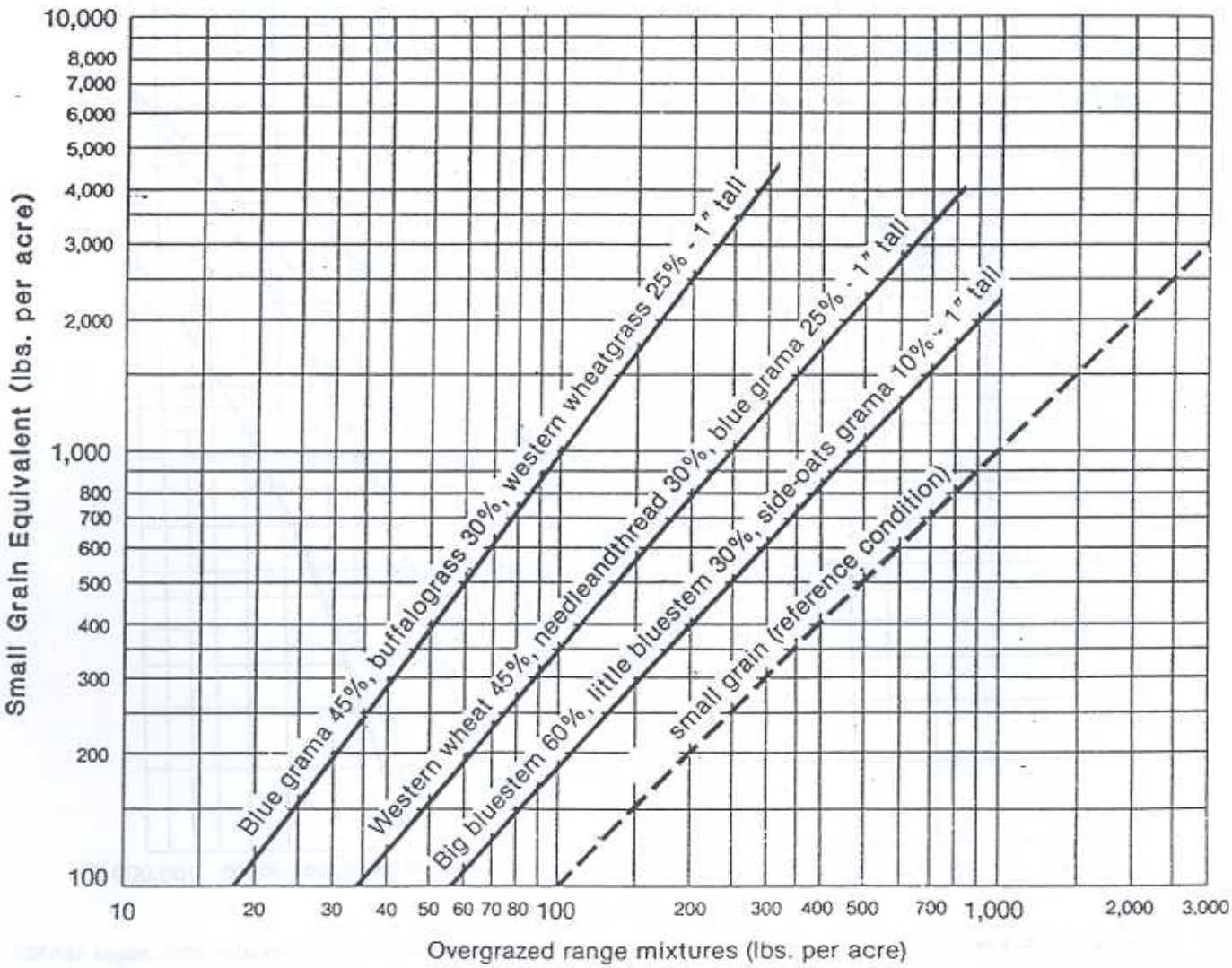
Source: Woodruff, N.P., L. Lyles, J.D. Dickerson, and D.V. Armbrust. 1974 Journal Soil and Water Conservation 29(3), pages 127-129.

Chart 4(22)

1985

Small Grain Equivalents of Overgrazed Range Mixtures·

Big Bluestem, Little Bluestem, Side-Oats Grama, Western Wheatgrass, Needleandthread, Blue Grama, and Buffalograss



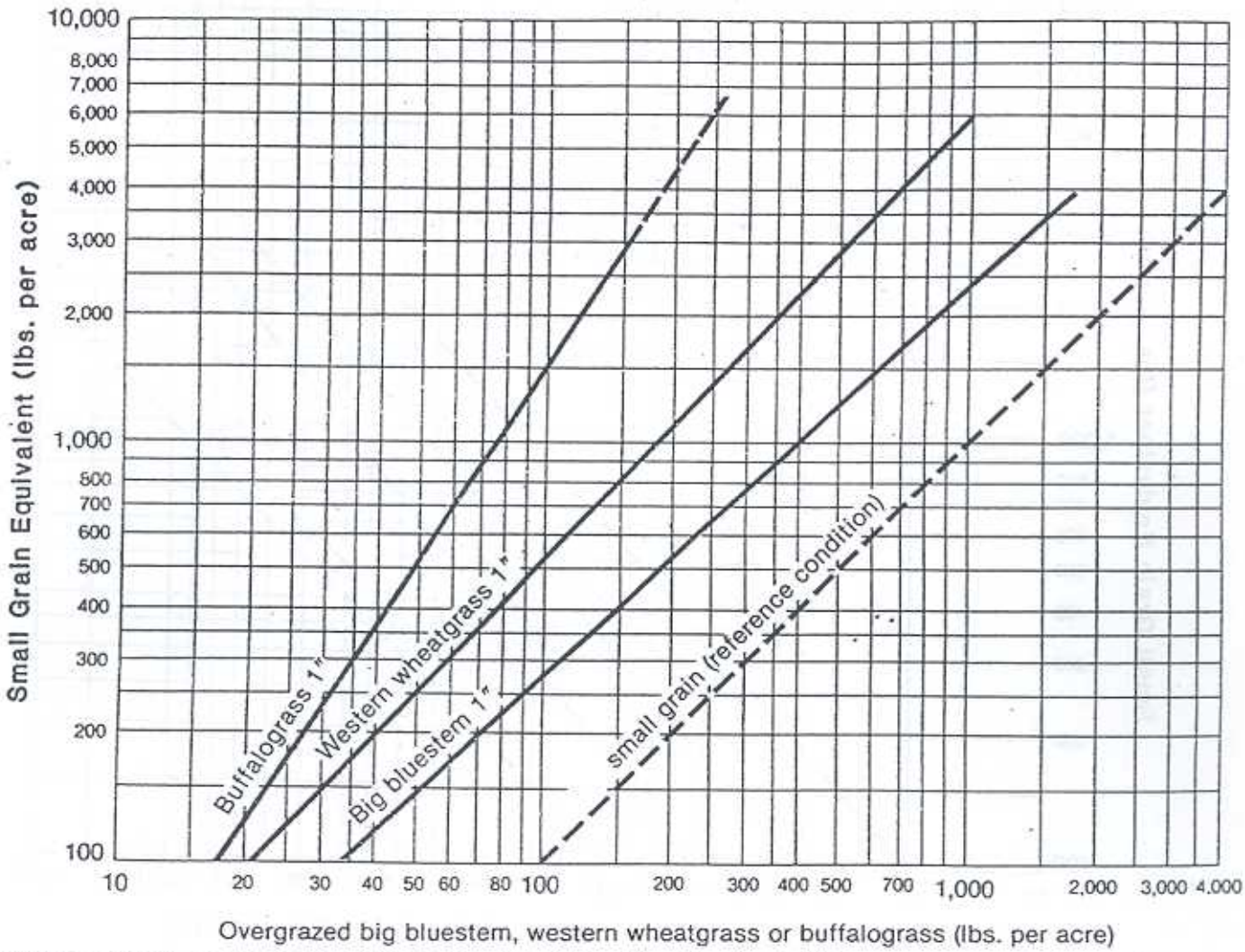
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980 Journal Range Management, 33(2), pages 143 - 146.

Chart 4(23)

1985

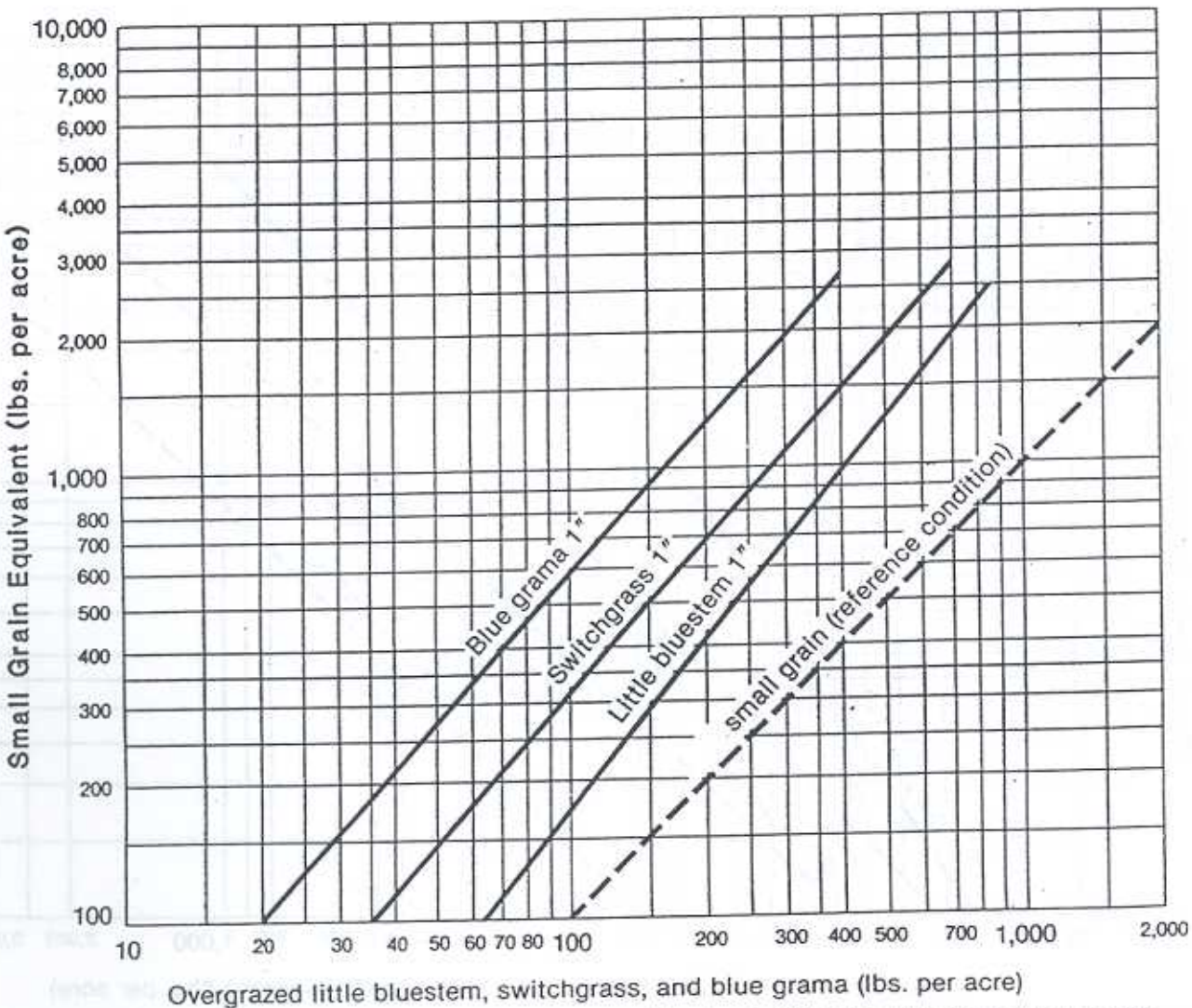
Small Grain Equivalents of Overgrazed Big Bluestem, Western Wheatgrass, and Buffalograss



Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980 Journal Range Management, 33(2), pages 143-146.

Small Grain Equivalents of Overgrazed Little Bluestem, Switchgrass, and Blue Grama



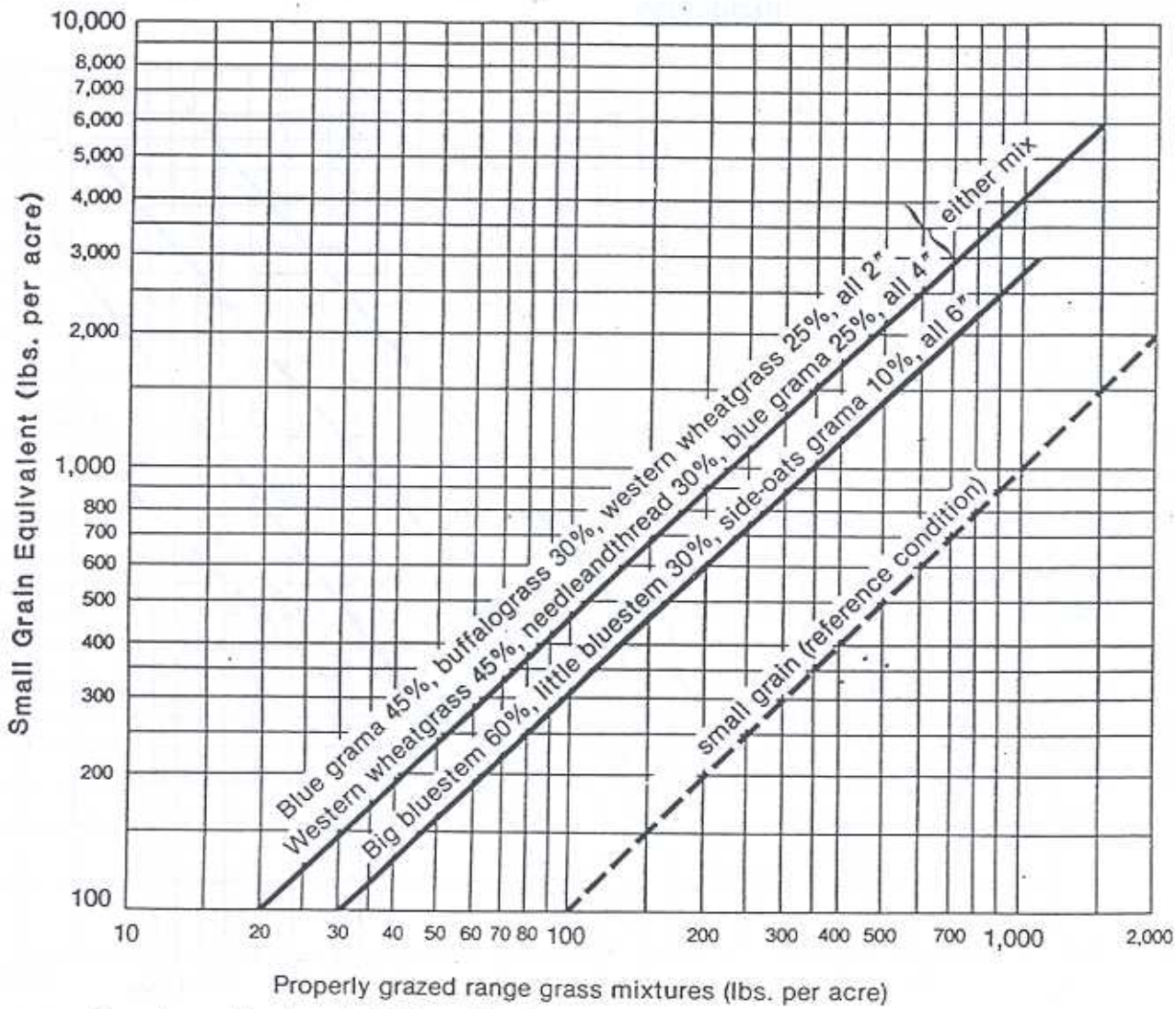
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980 Journal Range Management, 33(2), pages 143-146.

Chart 4(25)

1985

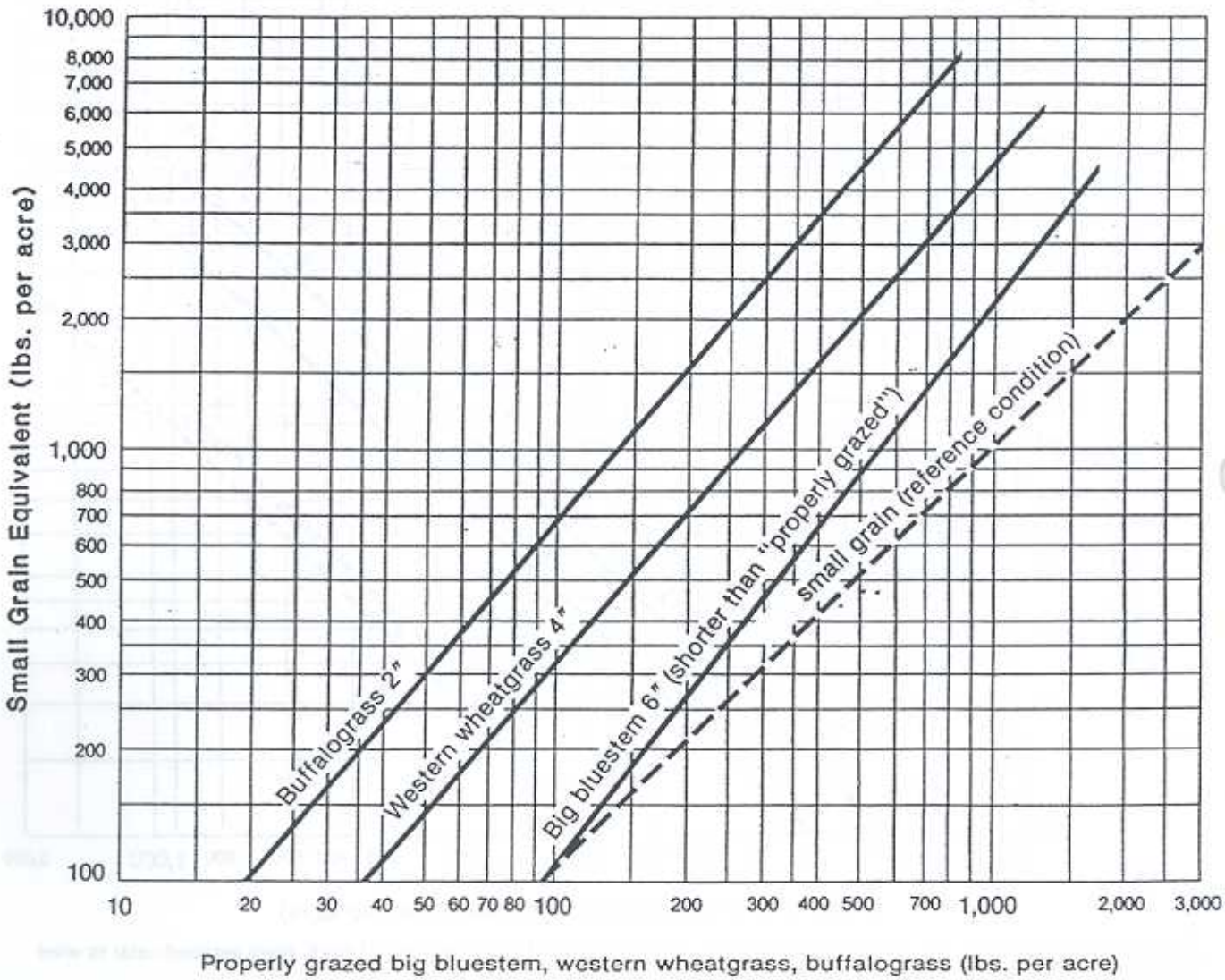
Small Grain Equivalents of Properly Grazed Range Grass Mixture



Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980 Journal Range Management, 33(2), pages 143-146.

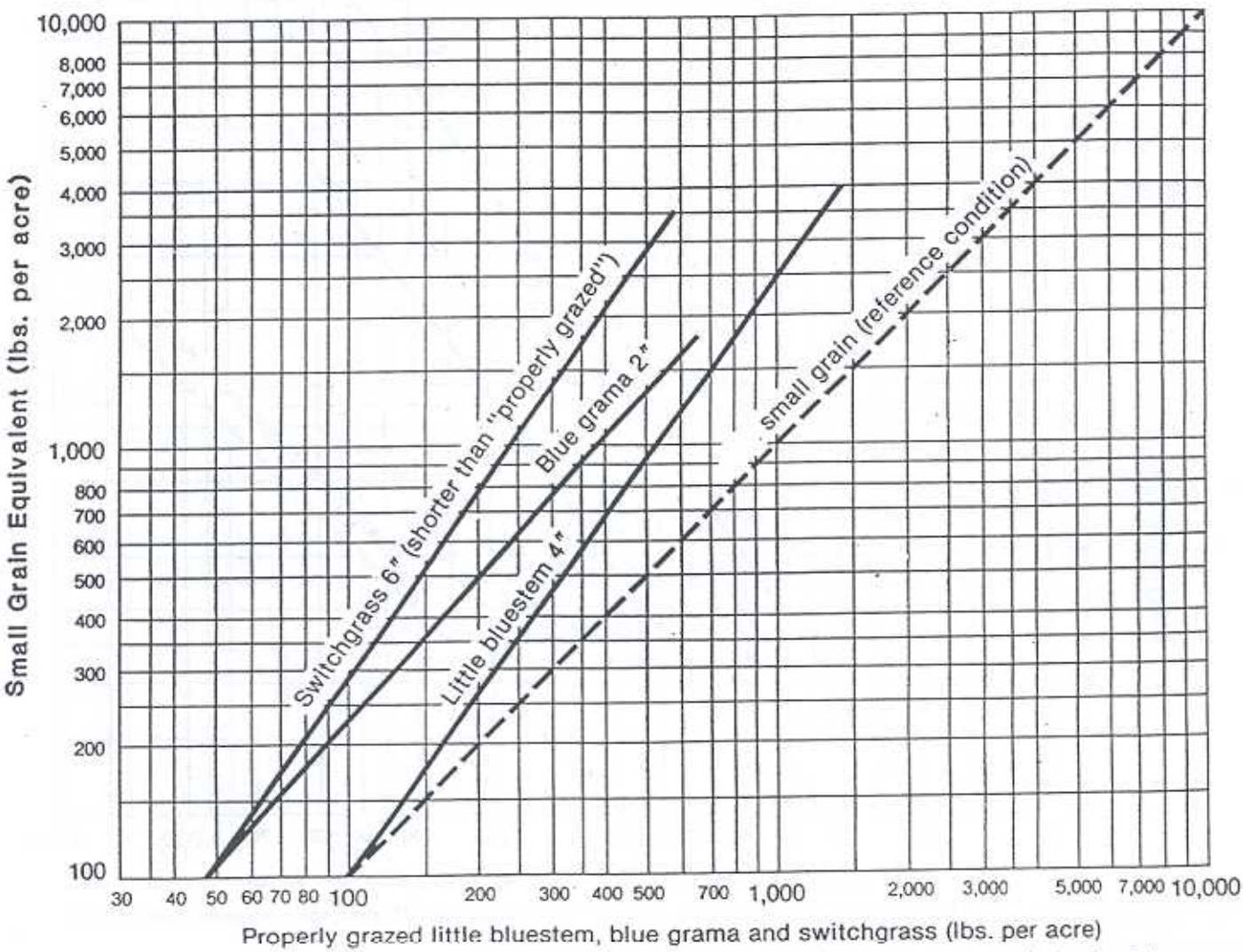
Small Grain Equivalents of Properly Grazed Big Bluestem, Western Wheatgrass, and Buffalograss



Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980, Journal Range Mangement 33(2), pages 143 - 146.

Small Grain Equivalents of Properly Grazed Little Bluestem, Blue Grama, and Switchgrass



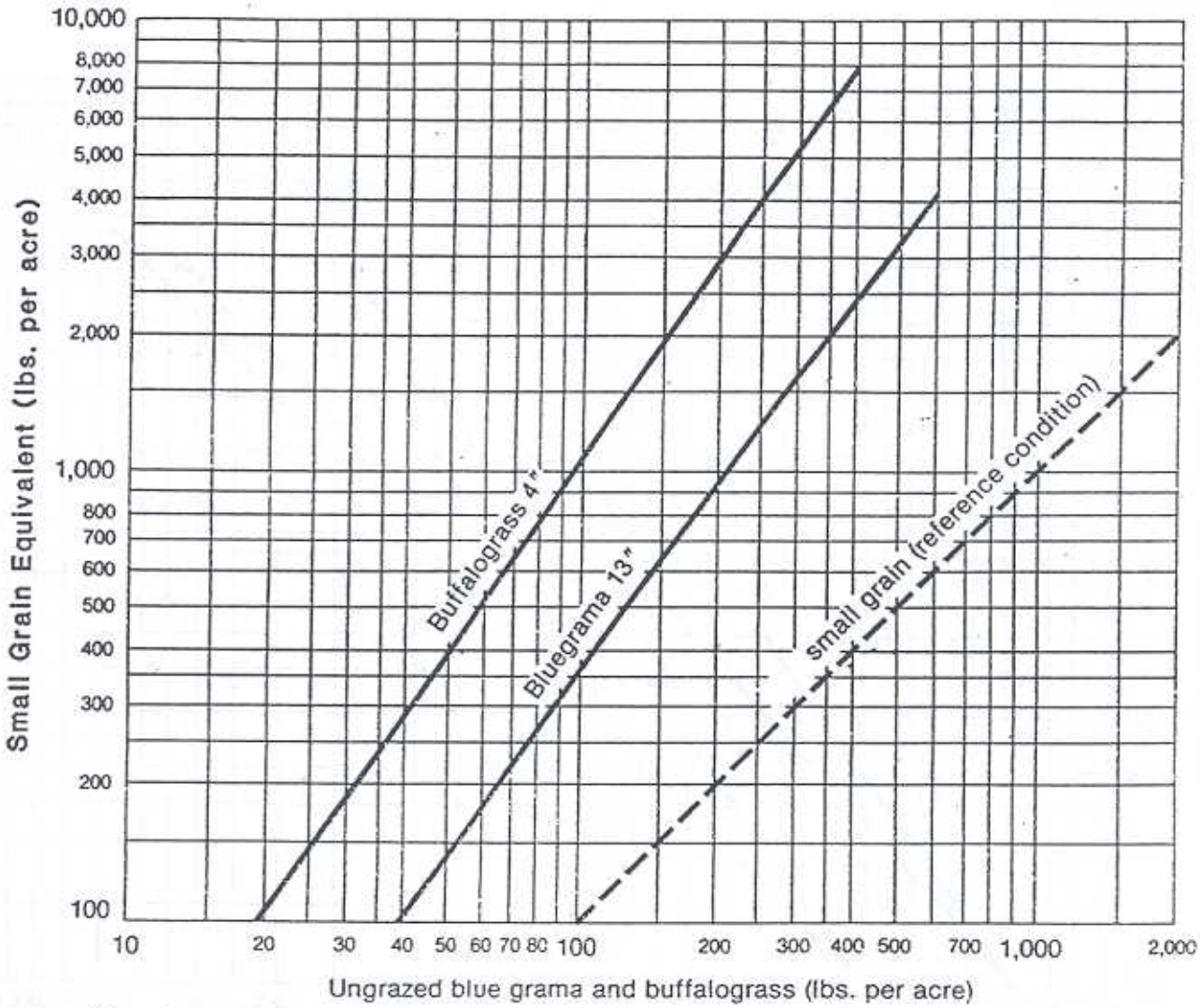
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980, Journal Range Management 33(2), pages 143-146.

Chart 4(28)

1985

Small Grain Equivalents of Ungrazed Blue Grama and Buffalograss



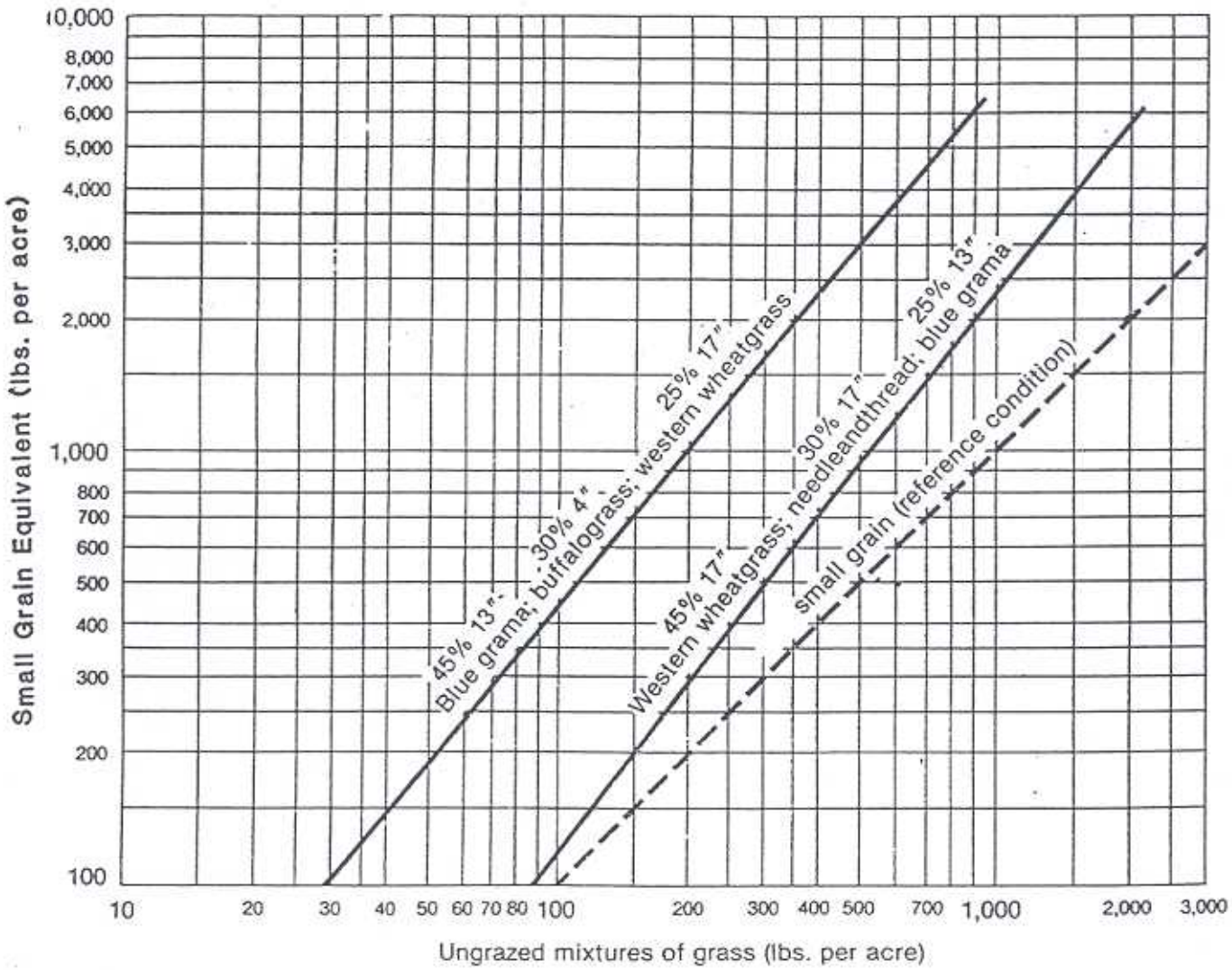
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980, Journal Range Management 33(2), pages 143 - 146.

Chart 4(29)

1985

Small Grain Equivalents of Ungrazed Western Wheat, Needleandthread, Blue Grama, and Buffalograss Mixtures



Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Lyles and Allison - 1980, Journal Range Management 33(2), pages 143-146.