

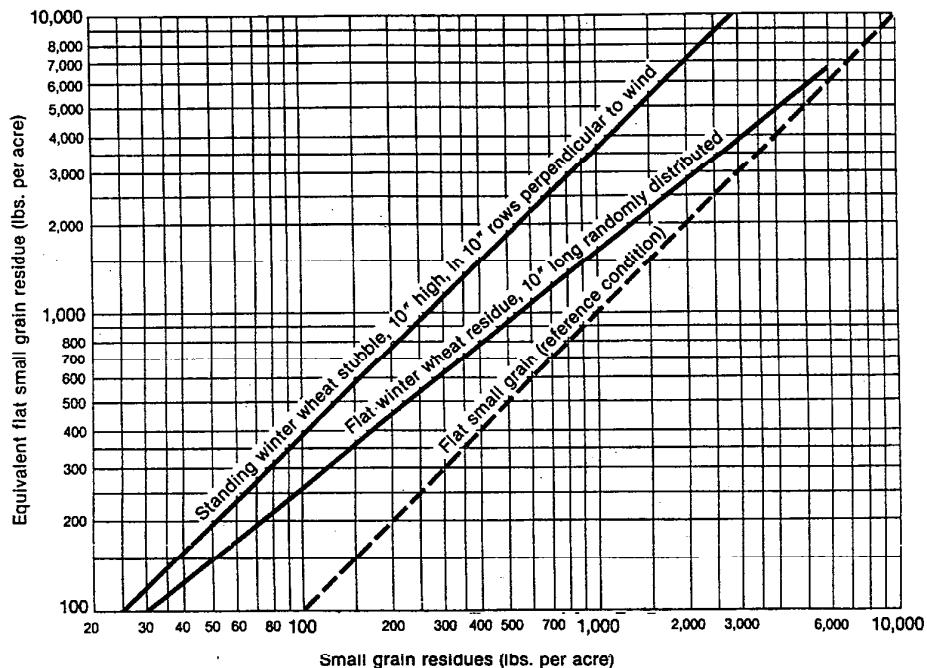
## VEGETATIVE COVER "V"

$$\text{Wind Erosion Equation } E = f[(\text{IKC})LV]$$

### Vegetative Cover Factor "V"

The effect of vegetative cover in the Wind Erosion Equation is expressed by relating the kind, amount, and orientation of vegetative material to its equivalent in pounds per acre of small grain residue in reference condition (SGe).

**Flat 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.

**Figure 27.**

### SGe Reference Condition

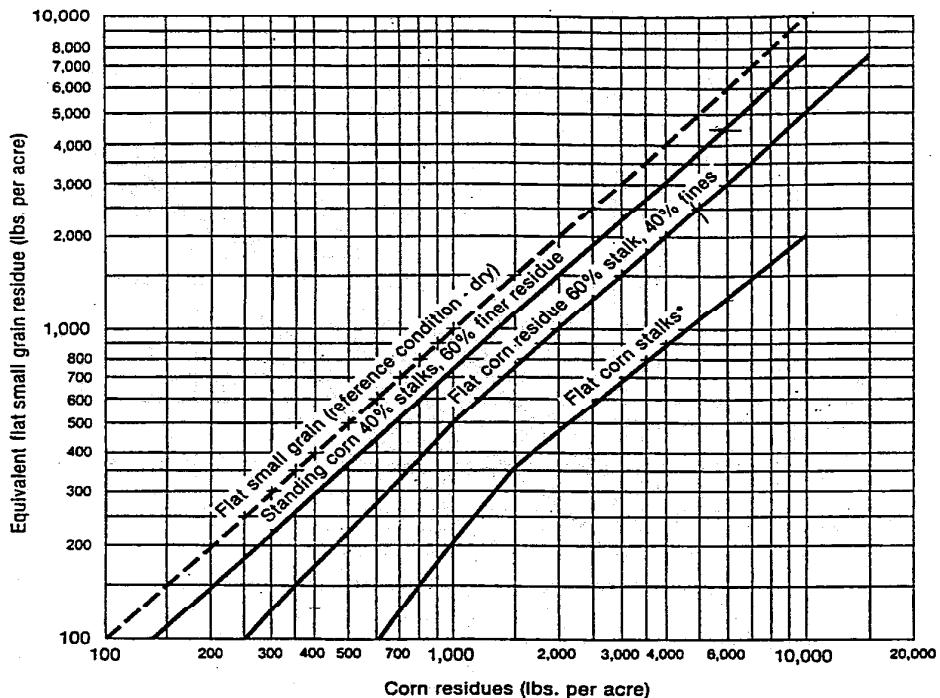
The term Flat Small Grain Equivalent (SGe) is based on a reference condition (dotted line in Figure 27) developed from wind tunnel research. It is defined as:

10-inch stalks of small grain lying parallel to the wind arranged in rows spaced 10 inches apart, oriented perpendicular to the wind. This is an artificial condition or reference condition to which other kinds, orientation, and amounts of residue have been compared as to their effectiveness.

### Kind and Size of Residue

The kind and size of residue influence the effectiveness for wind erosion reduction. Generally, the finer the residue the more effective it is per pound. This is why an equal number of pounds of coarse residue like cornstalks is less effective than small grain residue. In Figure 28, you can see that 500 lb. of flat corn residue is equivalent to only 250 lb. of flat small grain residue.

**Flat 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.)

**Figure 28**

### Amount of Residue

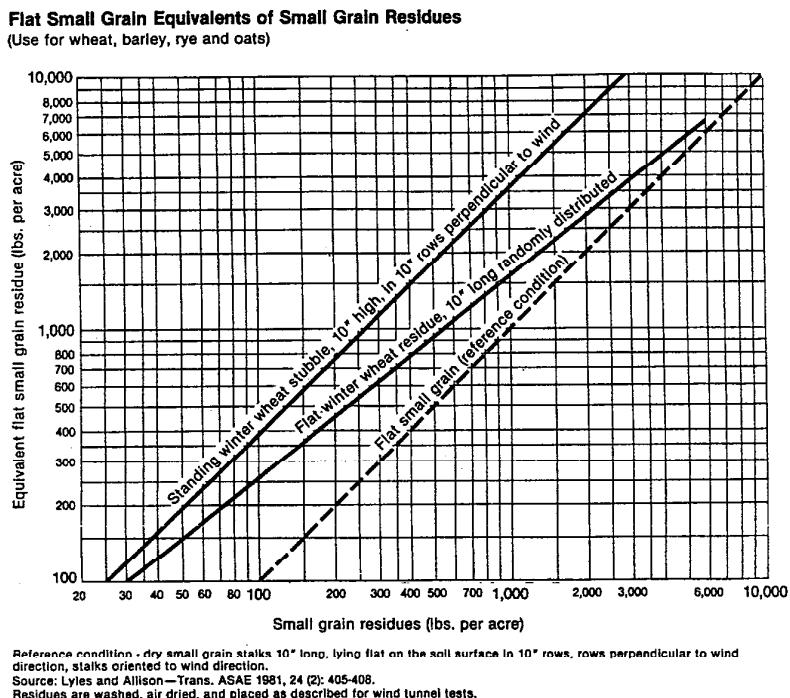
The amount of residue influences erosion rate by either providing for a protective layer or by reducing wind velocity. The greater the amount, the more protection provided. There is not necessarily a linear relationship between residue amount and erosion reduction.

### Orientation of Residue

Since wind flows horizontally across the soil surface, the orientation of vegetative cover affects the rate of erosion losses in two ways:

1. Flat residues reduce erosion primarily by forming a protective layer or barrier between the soil surface and the forces of the wind and secondarily by reducing the wind velocity near the surface.
2. Leaning and standing residues reduce wind erosion primarily by reducing wind velocity at the soil surface and secondarily by forming a surface barrier.

In Figure 29, you can see that both standing winter wheat stubble and randomly distributed flat wheat stubble are more effective than the flat small grain reference condition.



**Figure 29**

#### Determination of SG<sub>e</sub>

1. Determine the kind of residue
2. Determine the amount of residue

Several acceptable methods are currently used to estimate or predict quantities of residue on the surface. These methods include:

- Line-transect method - used for estimating the amount of random flat residue on the field. See Part 503, Crop Production, Subpart E, 503.53a in the National Agronomy Manual for this procedure.
  - Picture comparison method may be used for standing, flat and growing cover.
  - Clip and weigh method for determining total above ground residues. Can be used to determine each portion (standing and flat).
  - Harvest yield ratios and tillage reduction values. See Part 503, Crop Production, Subpart E, in the National Agronomy Manual.
3. Convert percent cover to pounds per acre. When values are expressed in percent cover they will need to be converted to pounds per acre. This can be done by using a conversion chart (see Table 30). Farmers and planners need to have some method of measuring or determining what the specified pounds per acre or percent cover looks like in the field. This requires the planner to be able to convert freely between percent cover and pounds per acre.

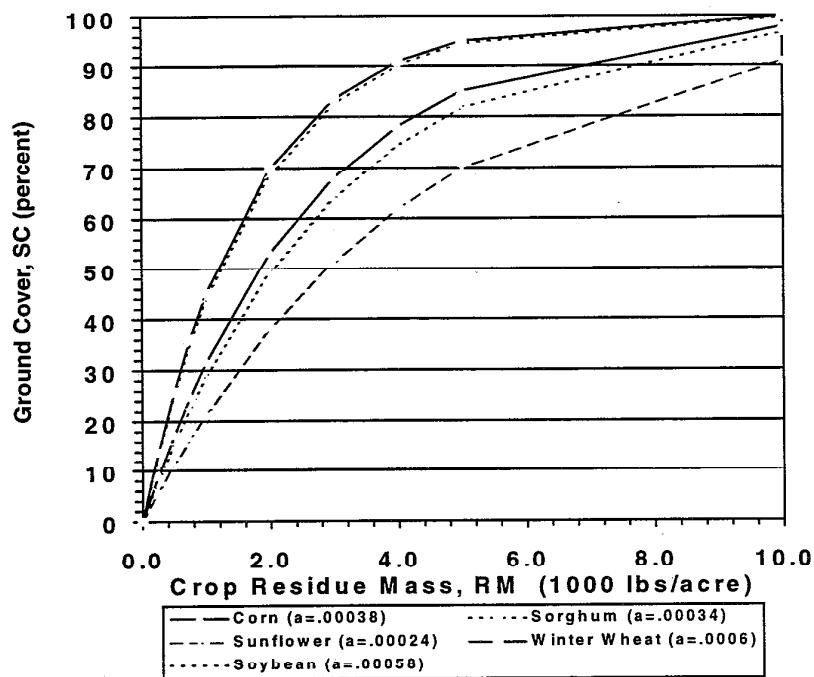
4. Determine orientation. - Are the residues standing or flat and are they parallel or perpendicular to the wind direction?
5. Select the appropriate SGe chart for crop type, residue orientation, whether the crop is growing, and days after emergence. Figures 31 and 32 are examples of SGe charts for some crops, residues, and row orientations.
6. Determine SGe using appropriate curve on the chart.

Table 30  
Relationship of Flat Residue Weight  
to Percent Residue Cover for Various Crops

	Wheat, Soybeans, Rye, Alfalfa, Bromegrass	Corn, Sorghum, Tobacco, Peanuts	Cotton, Sunflowers
Percent Cover	lb/ac	lb/ac	lb/ac
5	75	90	200
10	150	200	450
15	240	400	710
20	330	600	980
25	430	800	1260
30	530	1000	1550
35	660	1220	1870
40	800	1450	2200
45	990	1720	2570
50	1200	2000	2950
55	1420	2320	3440
60	1650	2650	3950
65	1890	3070	4590
70	2150	3500	5250
75	2460	4090	6165
80	2800	4700	7100
85	3390	5690	8000
90	4000	6700	
95	5000	8000	
99	7250		

Source: Agriculture Handbook 703 - Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE)

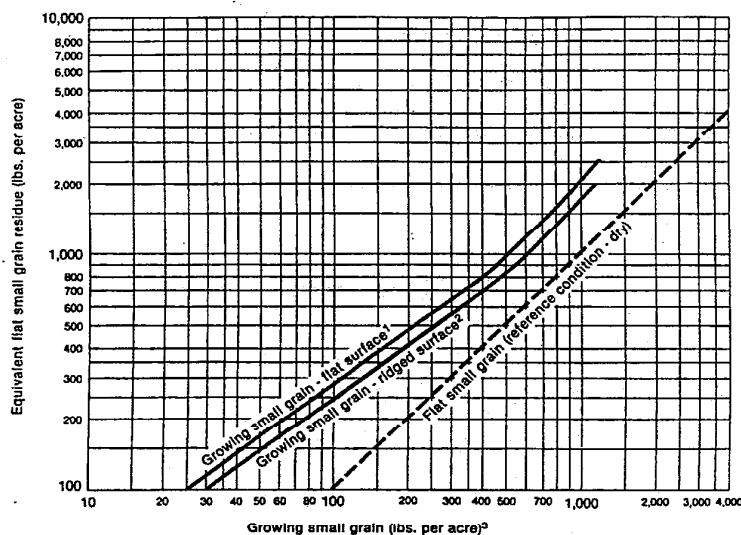
Figure 30 shows the relationship between mass and ground cover for major crops.



$$SC = [1 - \exp(-a(RM))]100 \quad * \text{For flat randomly oriented residues}$$
$$RM = \ln[1 - (SC/100)]/-a$$

Figure 30

**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:

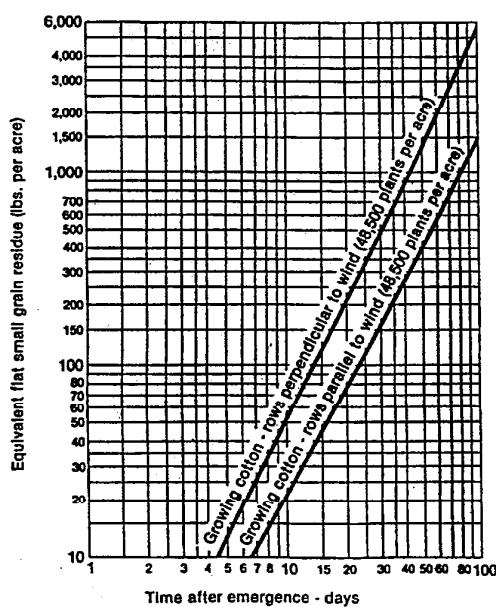
1 Siddoway, F.H., W.S. Chepil, and D.V. Armbrust 1965

2 Estimates by Best Judgement of SCS Personnel.

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

**Figure 31**

**Flat Small Grain Equivalents of Growing Cotton: Days After Emergence**



Source: Armbrust & Lyles, 1984-unpublished.

**Figure 32**

### Weighted SGe Calculations for Mixed Vegetative Cover

When residues consist of different kinds of residue, or residues with different orientations, a different procedure is used to estimate SGe, as follows below.

1. Describe each major component (by kind or orientation) and estimate the percentage of total air-dry weight of each component.
2. Add the components together to get total air-dry weight.
3. Using the appropriate curve, the total air-dry weight of all components, determine the SGe value of each component.
4. Multiply the SGe value of each component by the percentage of air-dry weight.
5. Add the products of each component. The sum is the weighted average SGe for the mixed cover.

#### **Example: Mixed orientation (standing and flat)**

- 2,500 lb. total air-dry winter wheat residue after harvest
  - 1,500 lb./acre (60 %) standing
  - 1,000 lb./acre (40%) flat
- Using SGe curves based on total residue:
  - SGe contribution from standing component  
 $* 2,500 \text{ lb./acre standing} = 8,500 \text{ lb. SGe} \times 60\% = 5,100 \text{ lb./acre SGe}$
  - SGe contribution from flat component  
 $* 2,500 \text{ lb./acre flat} = 3,000 \text{ lb. SGe} \times 40\% = 1,320 \text{ lb./acre SGe}$
- Weighted average = 5,100 lb. + 1,320 lb. = 6,420 lb./acre SGe

The same procedure can be followed for other mixed components, such as residues in combination with growing crops.

### Flat Small Grain Equivalent Curves

Exhibit C contains the flat small grain equivalent curves that are also displayed in the National Agronomy Manual.

## Exhibit C

502.65(a-d)

## Exhibit 502.65(a-d) Alphabetic Index

<u>Vegetation</u>	<u>Figure</u>	<u>Vegetation</u>	<u>Figure</u>
Alfalfa	b-1	Needleandthread	d-1,4,8
Barley	a-1,2	Oats	a-1,2
Beans, dry	b-2	Peanuts	b-12,13,14
Beets, sugar	b-15	Potato	b-15
Big bluestem	d-1,3,4,5	Range grasses and mixtures	d-1-8
Blue grama	d-1,3,4,6,7,8	Rape	b-16
Buckwheat	b-5	Rye	a-1,2
Buffalograss	d-1,2,4,5,7,8	Safflower	b-17
Corn	a-3,4,5,6	Sesame	b-12
Cotton	b-6,7,8, c-1	Sideoats grama	d-1,4
Dry beans	b-2	Sorghum	a-4,5,6,8
Flax	b-9	Soybeans	b-2,3,4
Guar	b-12	Sudan	a-9
Lentils	b-2	Sugar beets	b-15
Little bluestem	d-1,3,4,6	Sunflower	b-18
Manure	c-2	Switchgrass	d-3,6
Millet	a-7	Turnip	b-10
Mint	b-10	Western wheatgrass	d-1,2,4,5,8
Mustard	b-11	Wheat	a-1,2
		Winter peas	b-2

502-101

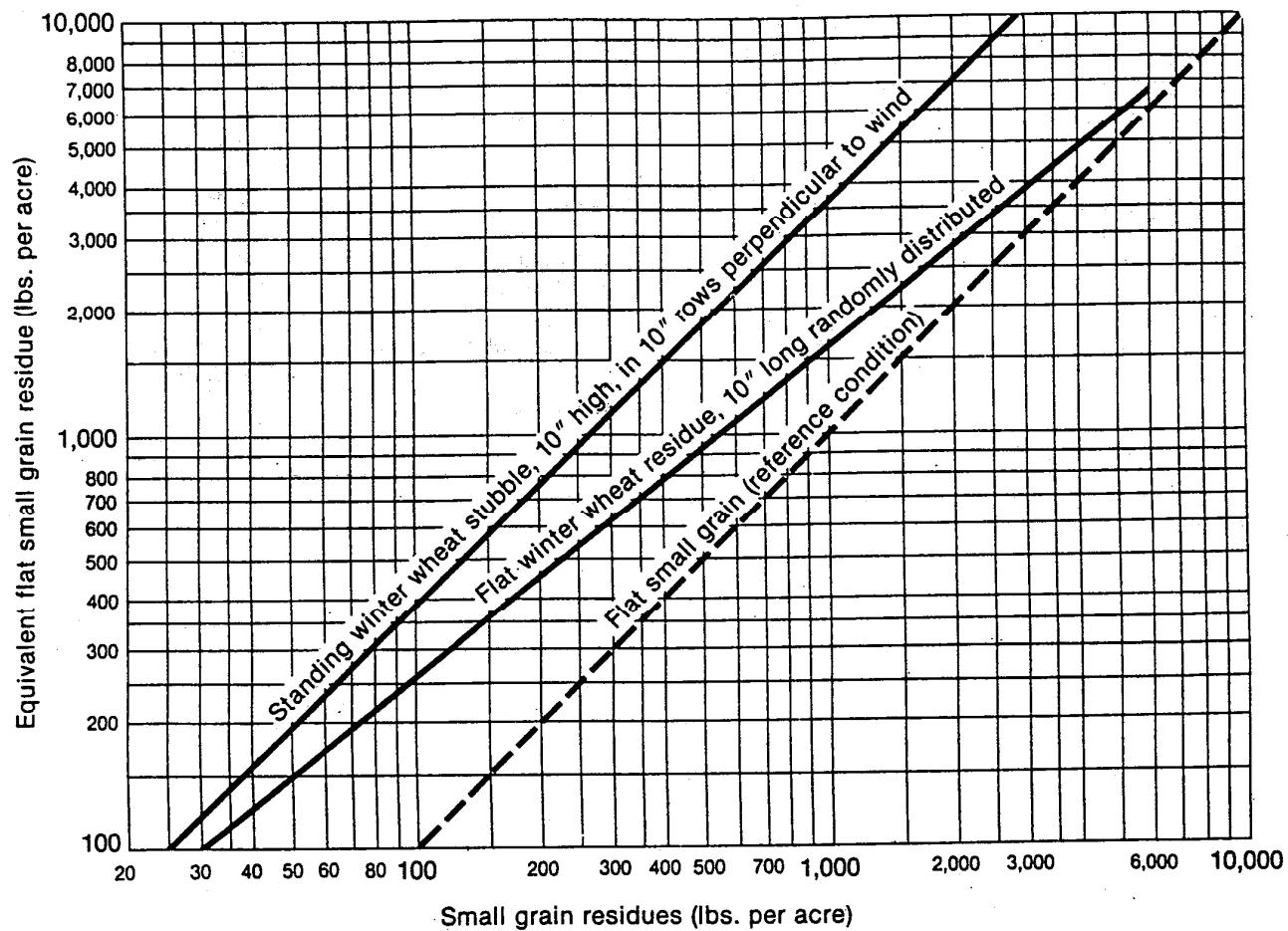
(190-V-NAM, Second Ed., March 1988)

502.65(a-d)

1985

Figure a-1

**Flat 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.

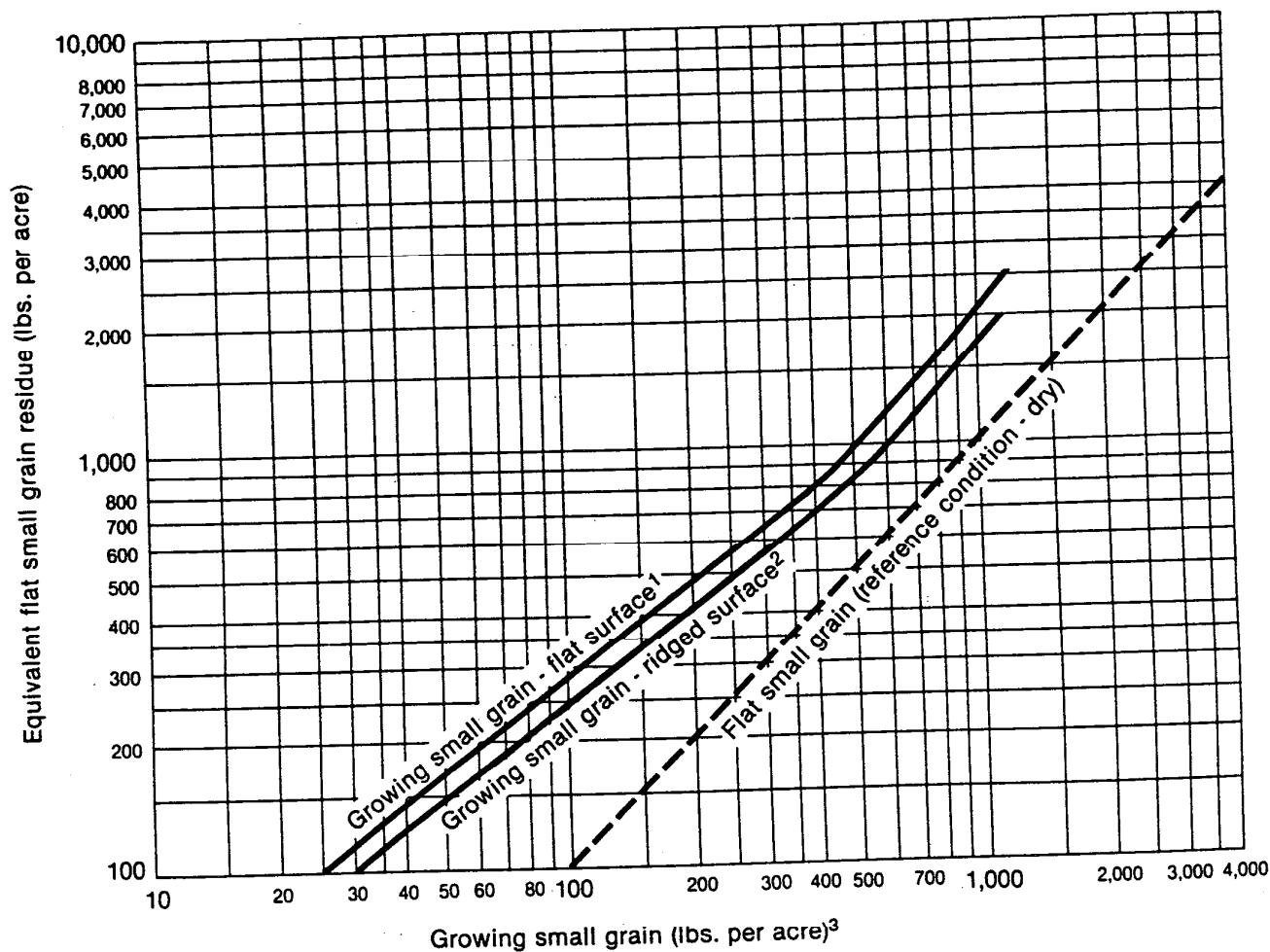
Residues are washed, air dried, and placed as described for wind tunnel tests.

502-102

(190-V-NAM, Second Ed., March 1988)

1985

Figure a-2

**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**

<sup>1</sup> Siddoway, F.H., W.S. Chepil, and D.V. Armbrust 1965

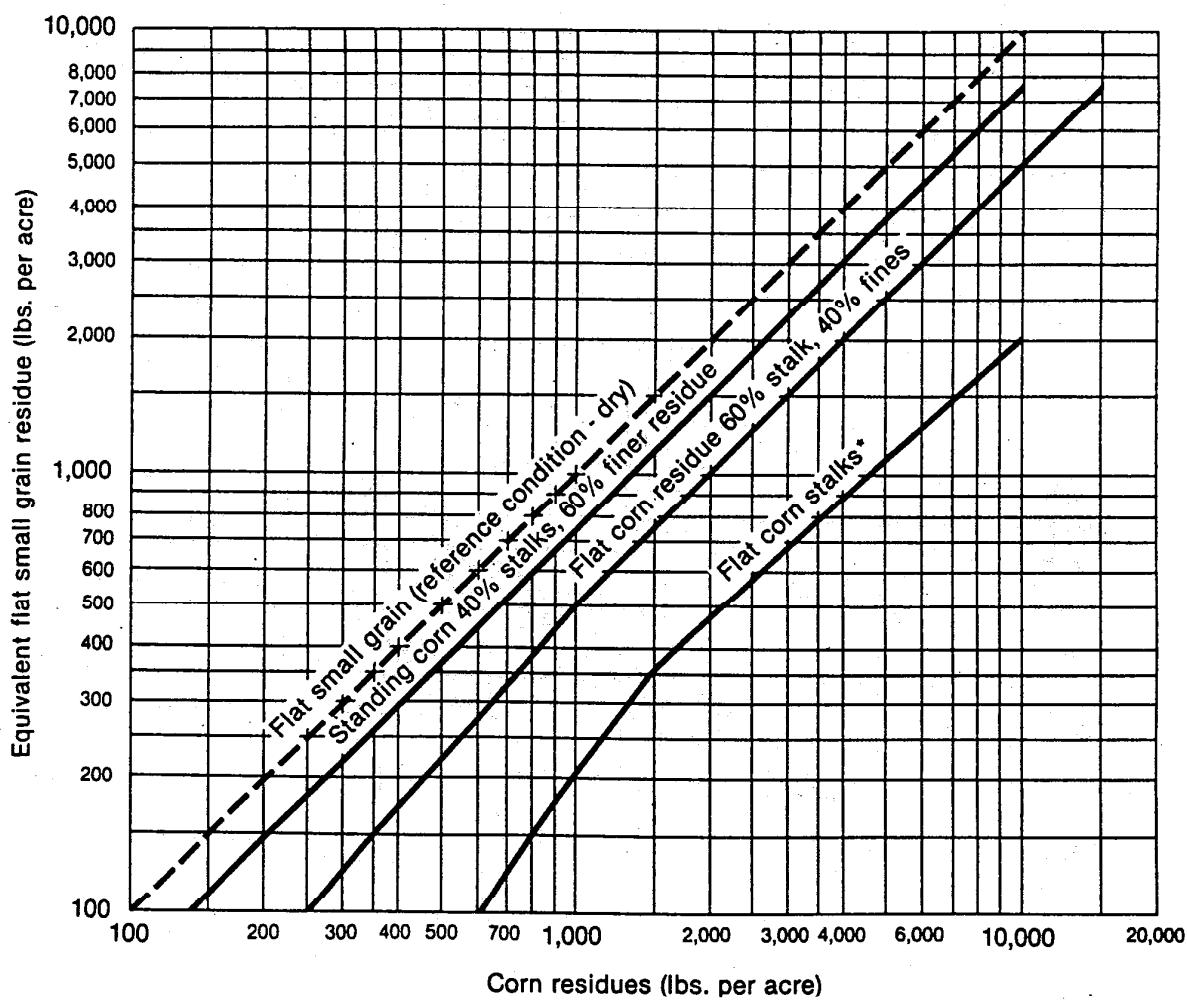
<sup>2</sup> Estimates by Best Judgement of SCS Personnel.

<sup>3</sup> Air-dry weights of growing winter wheat from emergence to winter dormancy.

502.65(a-d)

Figure a-3

1985

**Flat Small Grain Equivalents of Corn Residues**

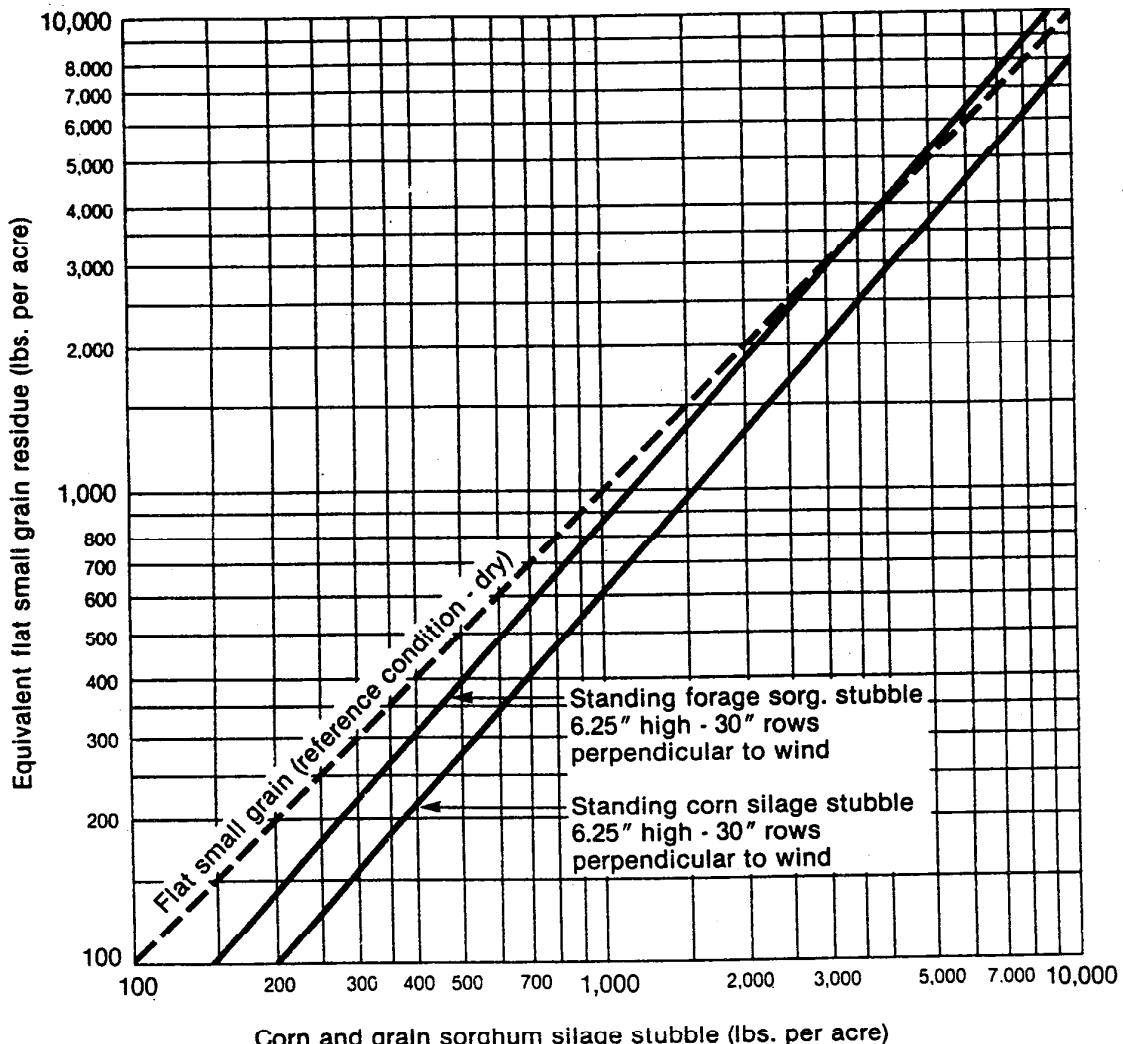
Source\*: Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408. (Flat to 2,000 lbs. standing to 3,500 lbs. Extended by SCS.)

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(190-V-NAM, Second Ed., March 1988)

Figure a-4

1985

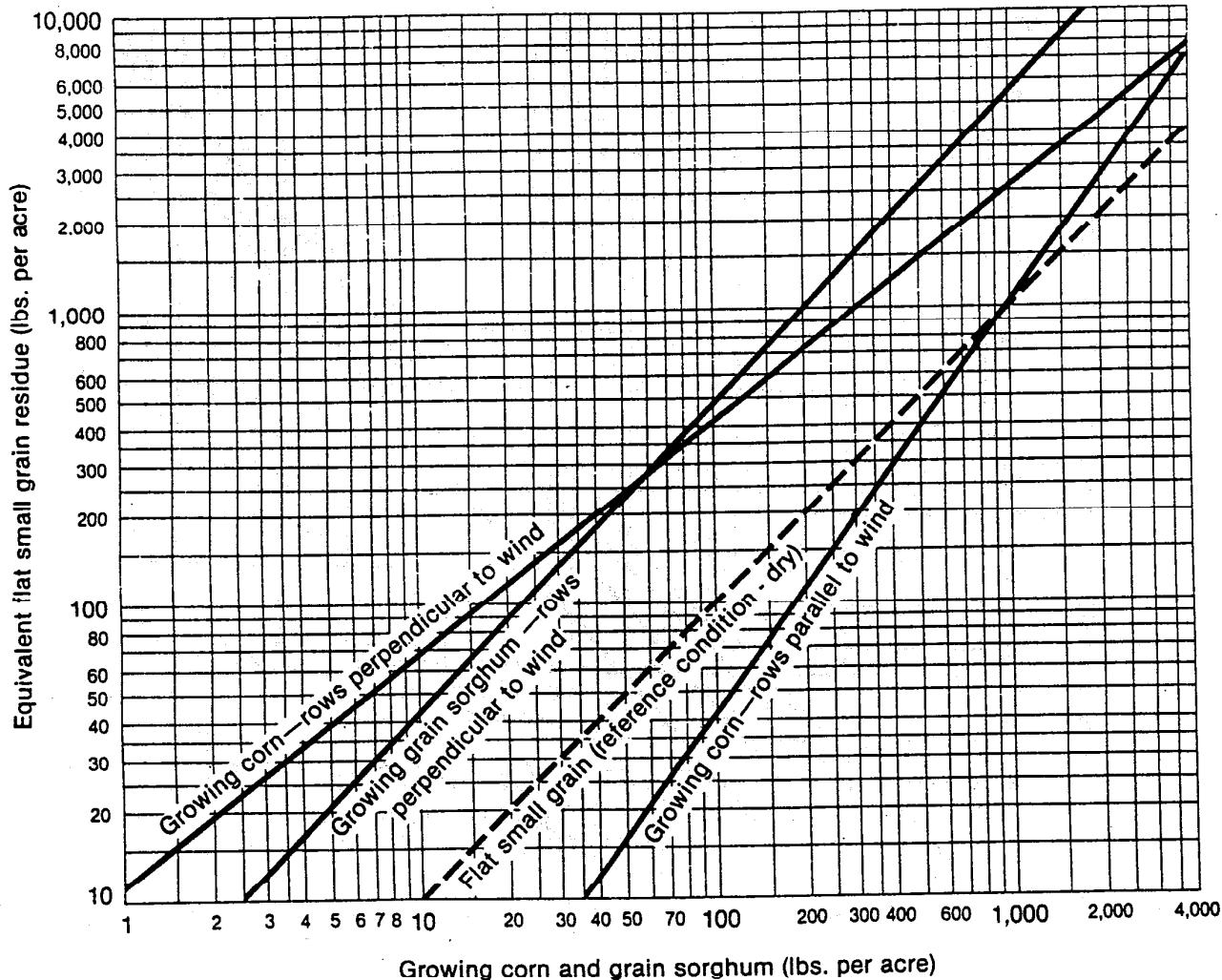
**Flat Small Grain Equivalents of Corn and Grain Sorghum Silage Stubble**

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.

502.65(a-d)

1985

Figure a-5

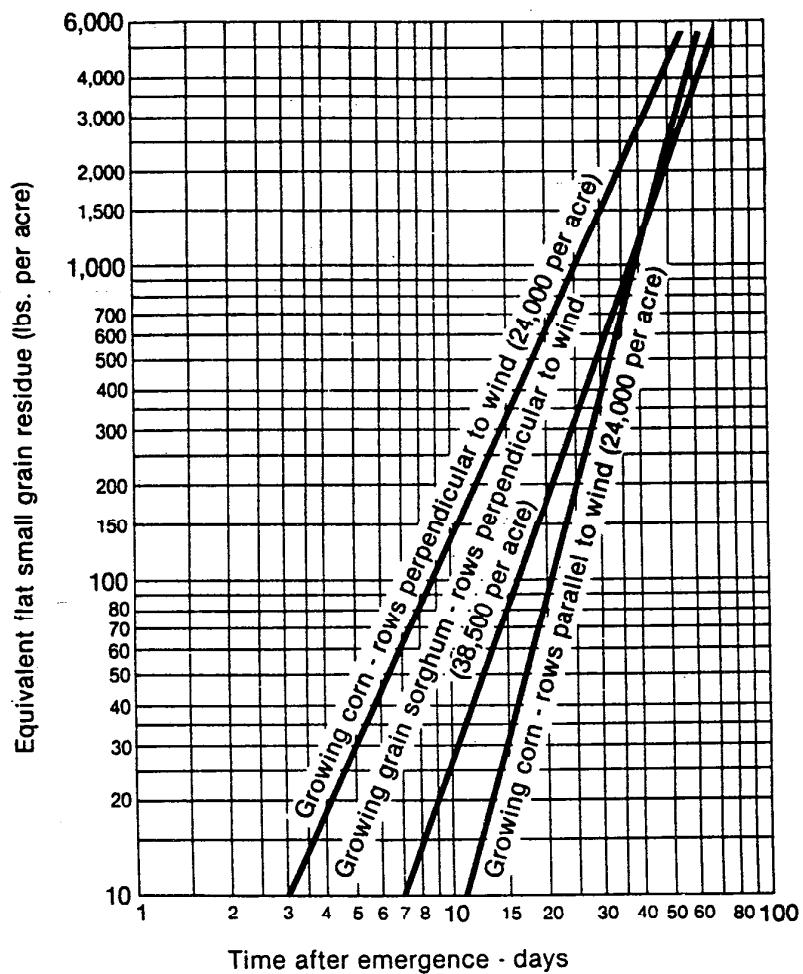
**Flat Small Grain Equivalents of Growing Corn and Grain Sorghum**

Source: Armbrust &amp; Lyles, 1984 - unpublished

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(190-V-NAM, Second Ed., March 1988)

Figure a-6

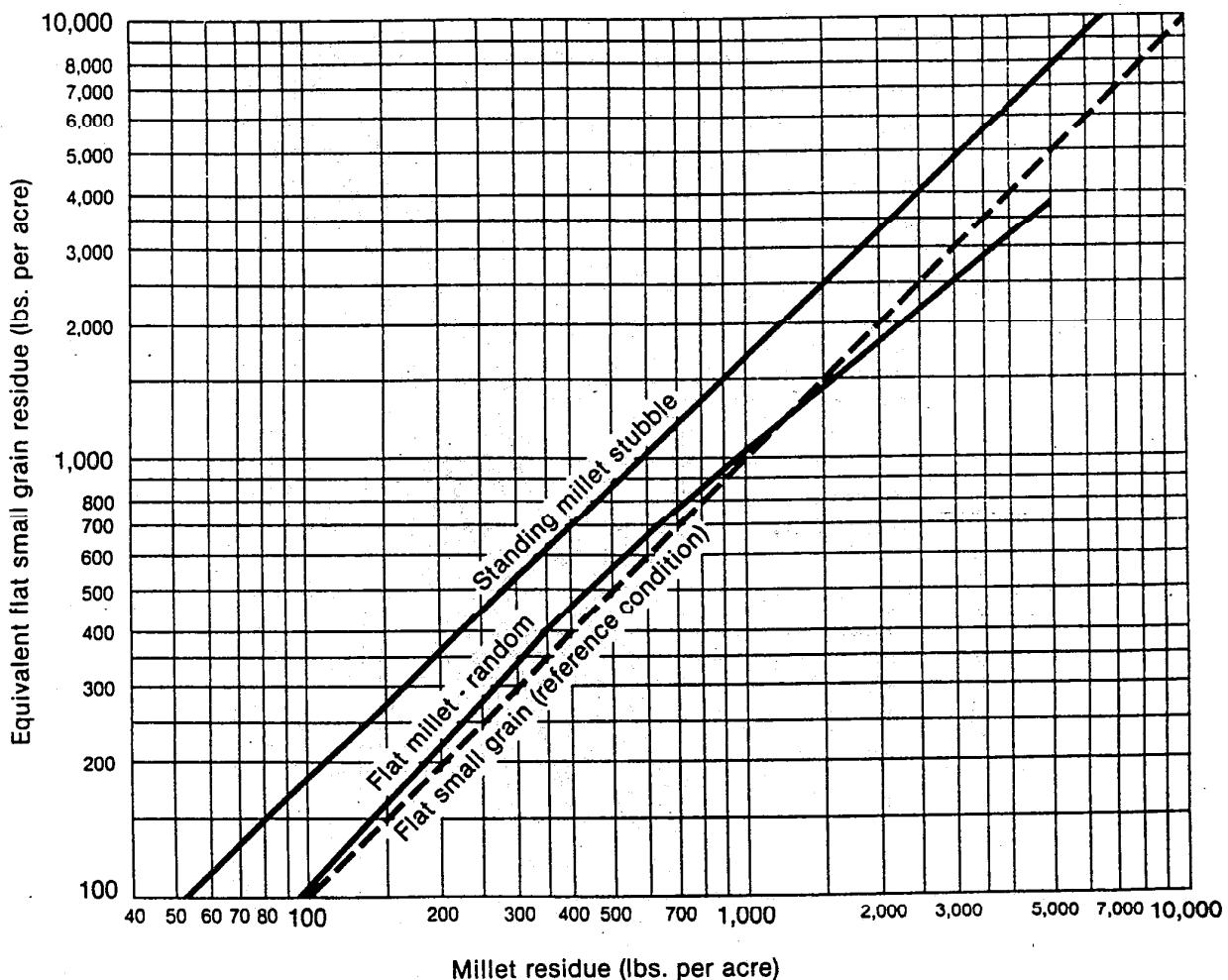
**Flat Small Grain Equivalents of Growing Corn and Grain Sorghum, Days After Emergence**

Source: Armbrust &amp; Lyles, 1984-unpublished.

502.65(a-d)

1985

Figure a-7

**Flat 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.

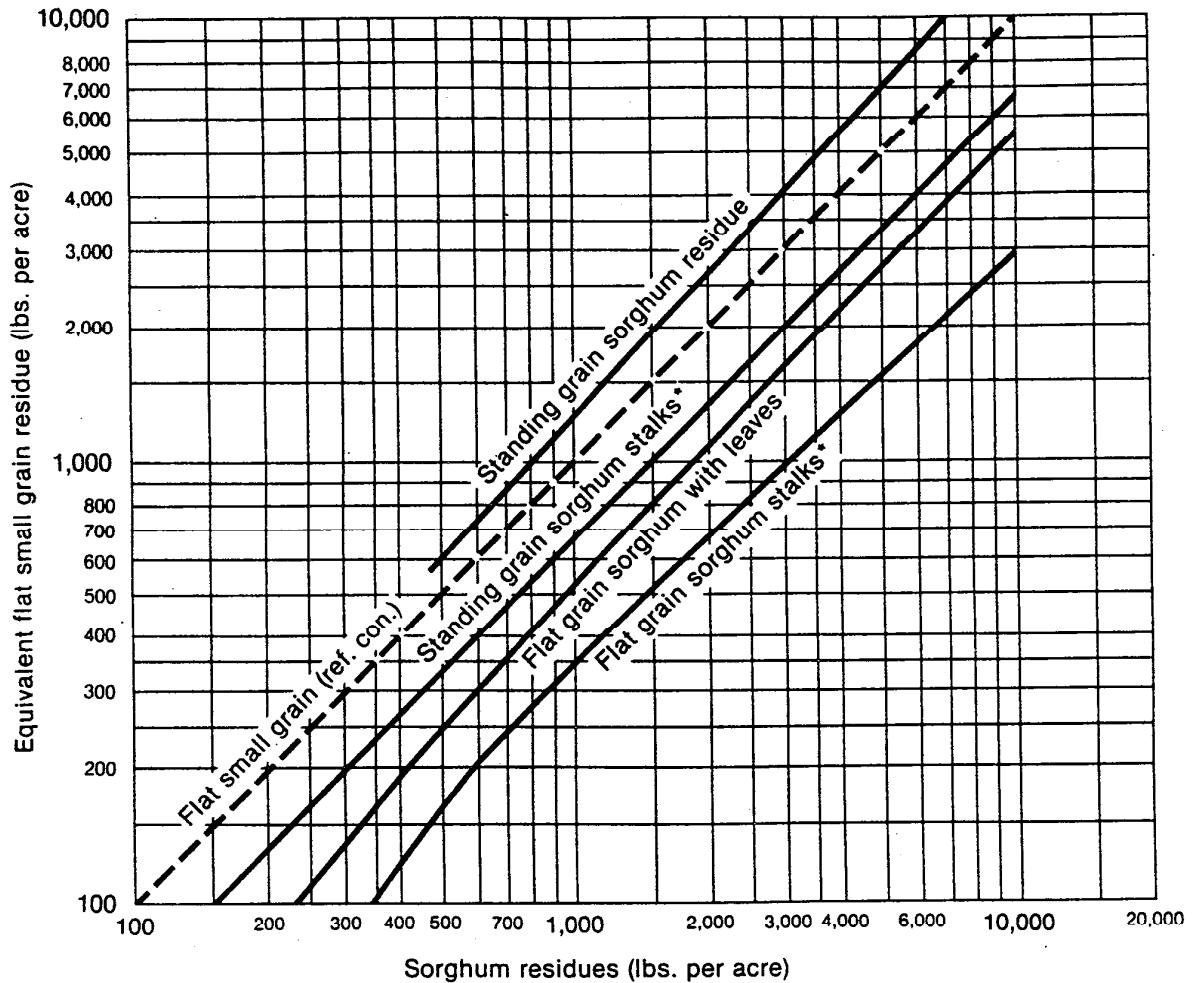
Source: Leon Lyles, ARS, memorandum, Jan. 25, 1985

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(190-V-NAM, Second Ed., March 1988)

Figure a-8

1985

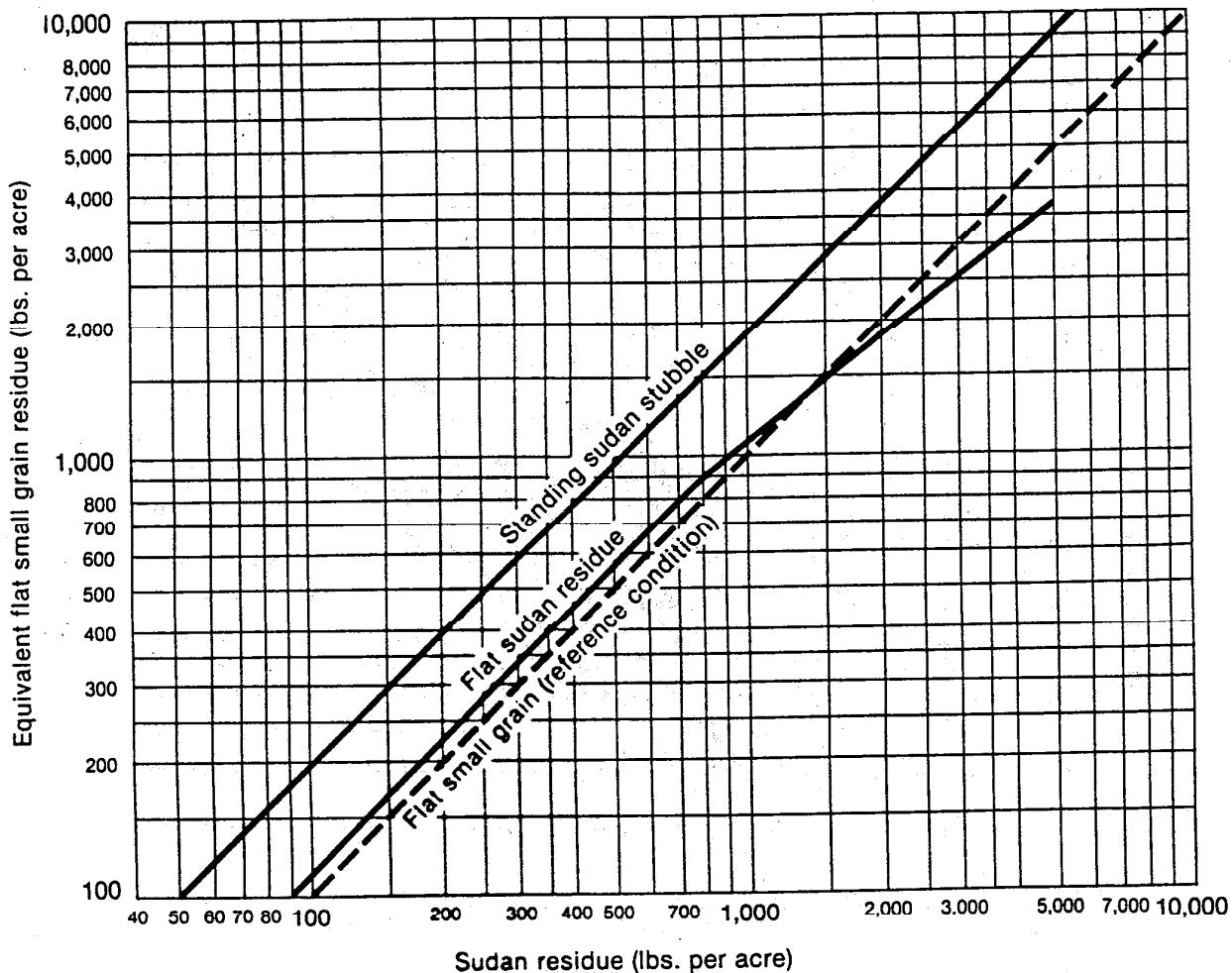
**Flat Small Grain Equivalents of Sorghum Residues**

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.

502.65(a-d)

1985

Figure a-9

**Flat 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.

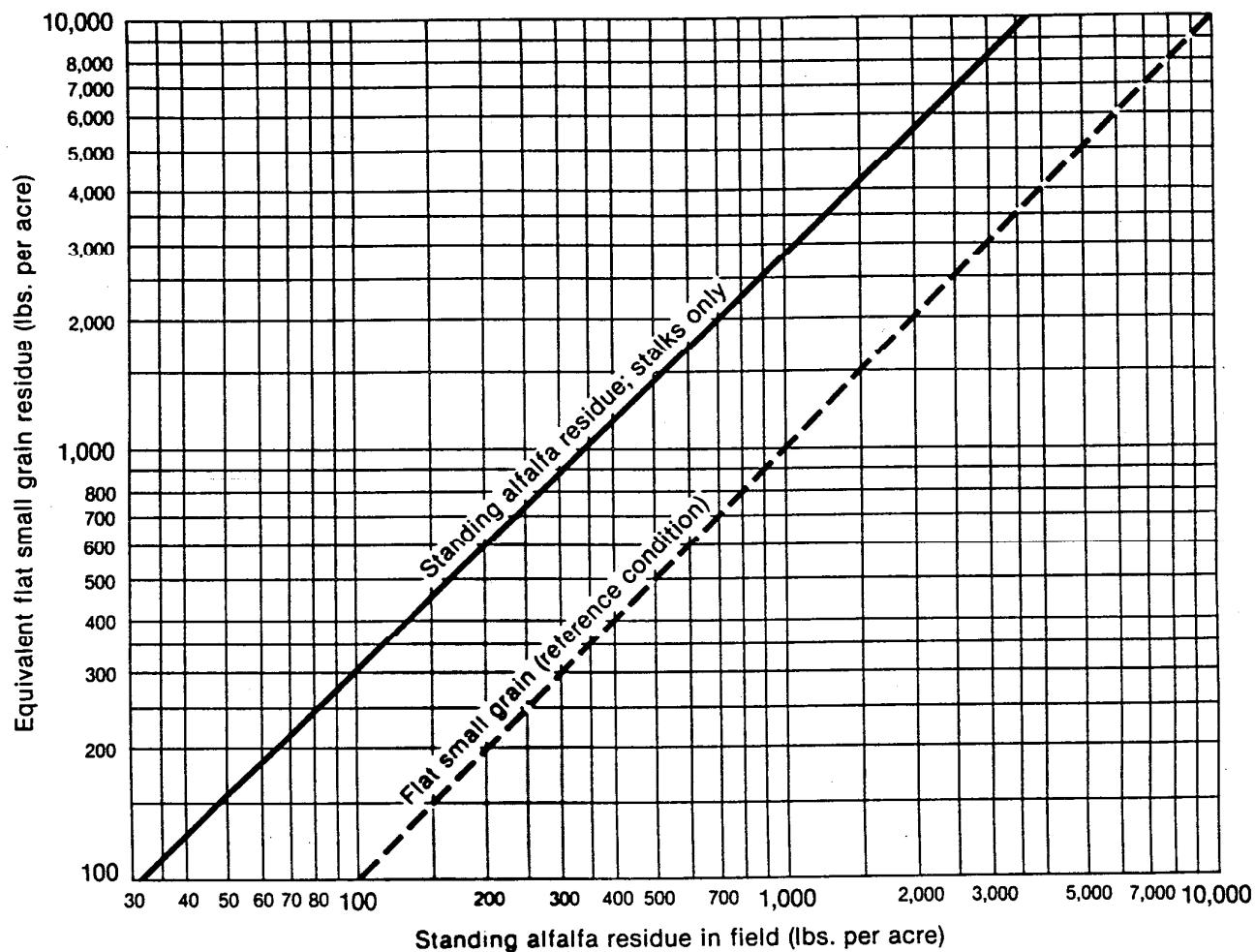
Source: Leon Lyles, ARS, memorandum, Jan. 25, 1985

502-110

(190-V-NAM, Second Ed., March 1988)

Figure b-1

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.

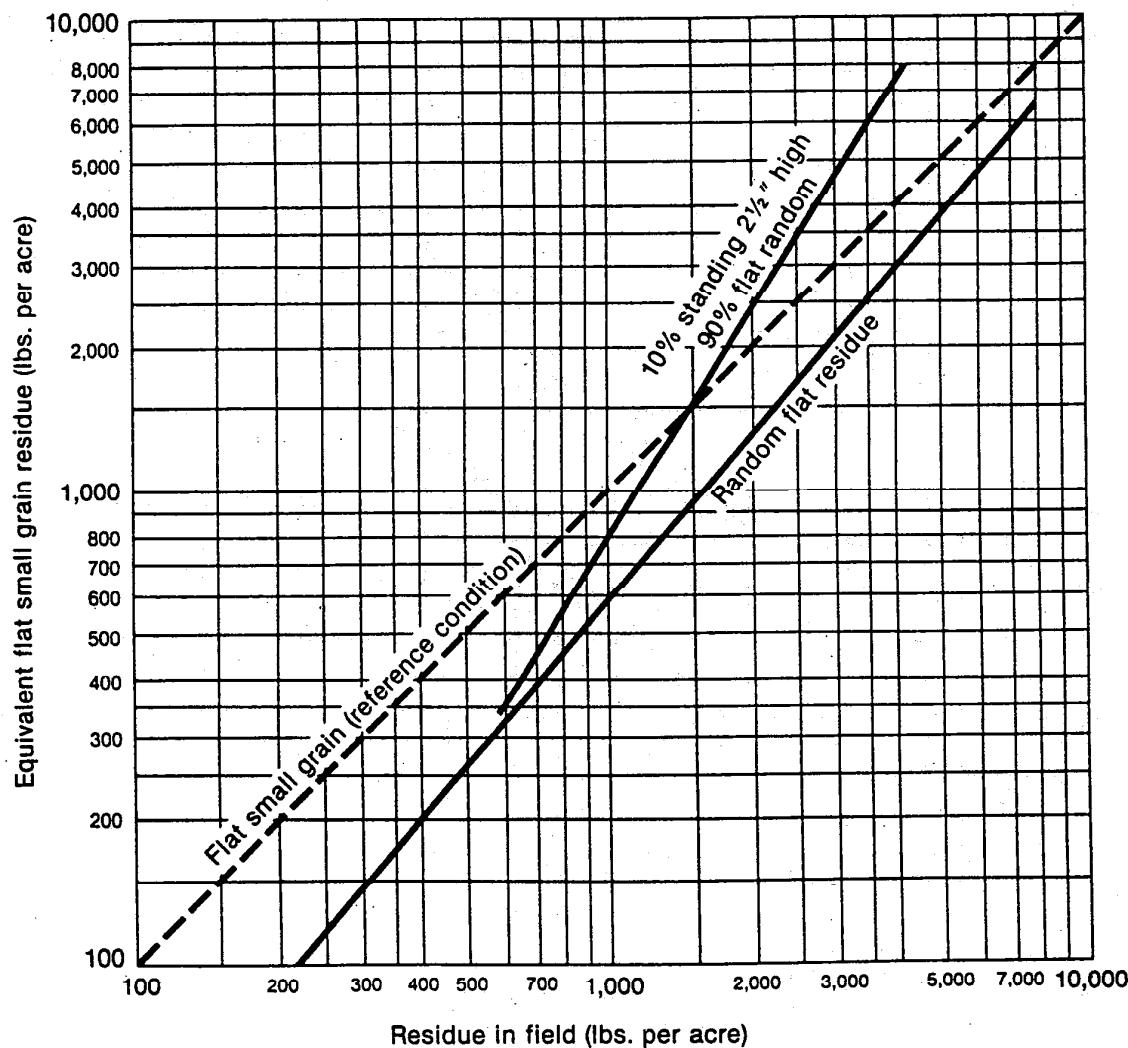
Source: Unpublished coefficients provided by Leon Lyles, ARS, Wind Erosion Research Unit, Manhattan, KS.

502.65(a-d)

Figure b-2

1985

**Flat 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.

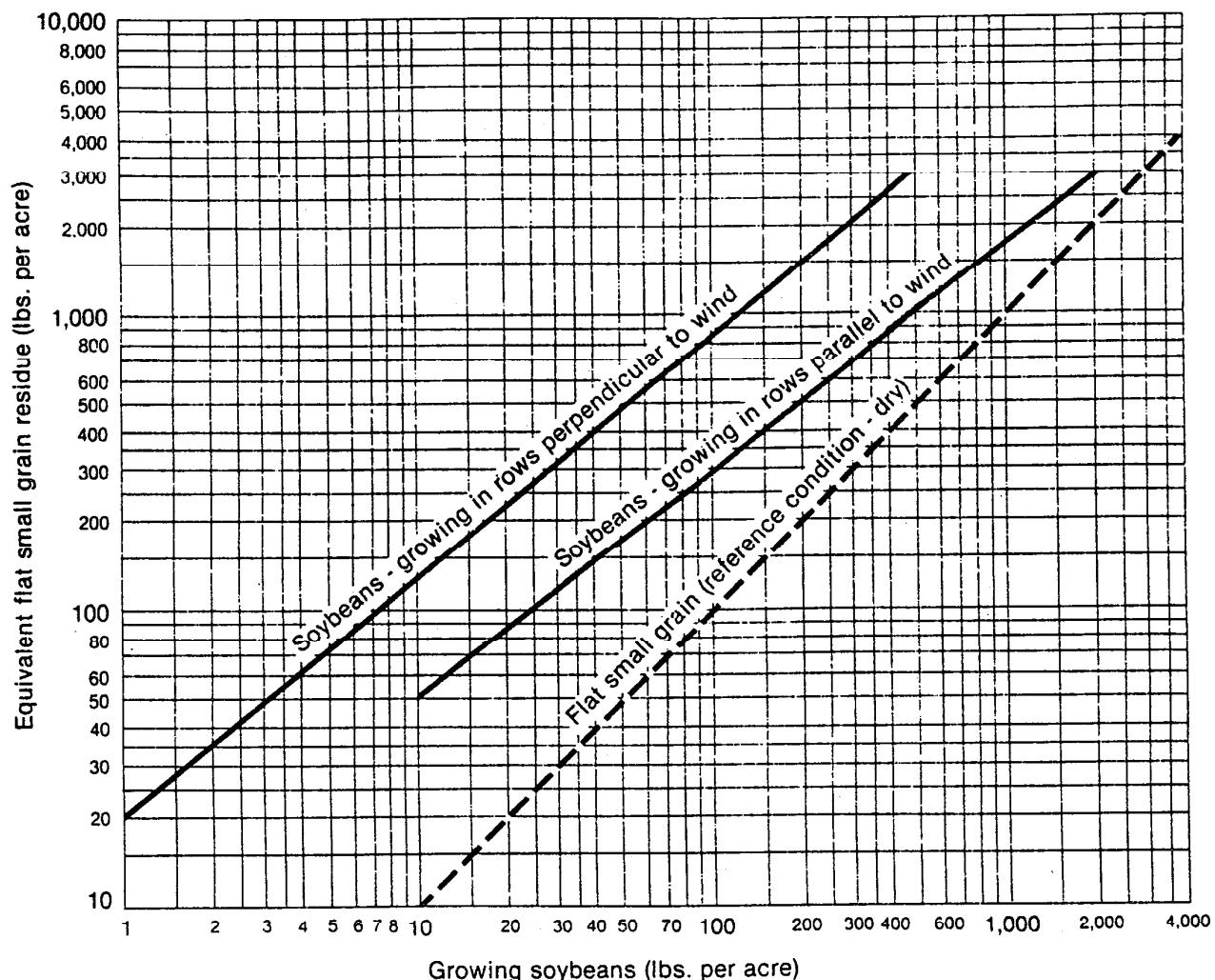
\*Soybeans - Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408.

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(190-V-NAM, Second Ed., March 1988)

Figure b-3

1985

**Flat Small Grain Equivalents of Growing Soybeans**

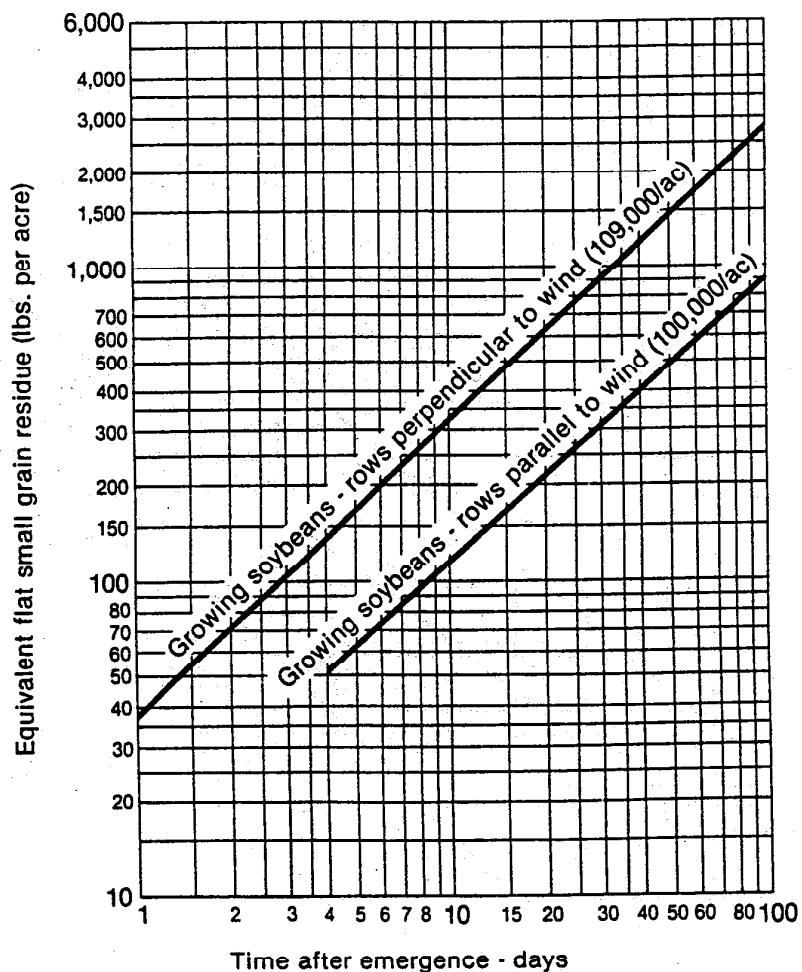
Source: Armbrust &amp; Lyles, 1984-unpublished.

502.65(a-d)

Figure b-4

1985

**Flat Small Grain Equivalents of Growing Soybeans - Days After Emergence**



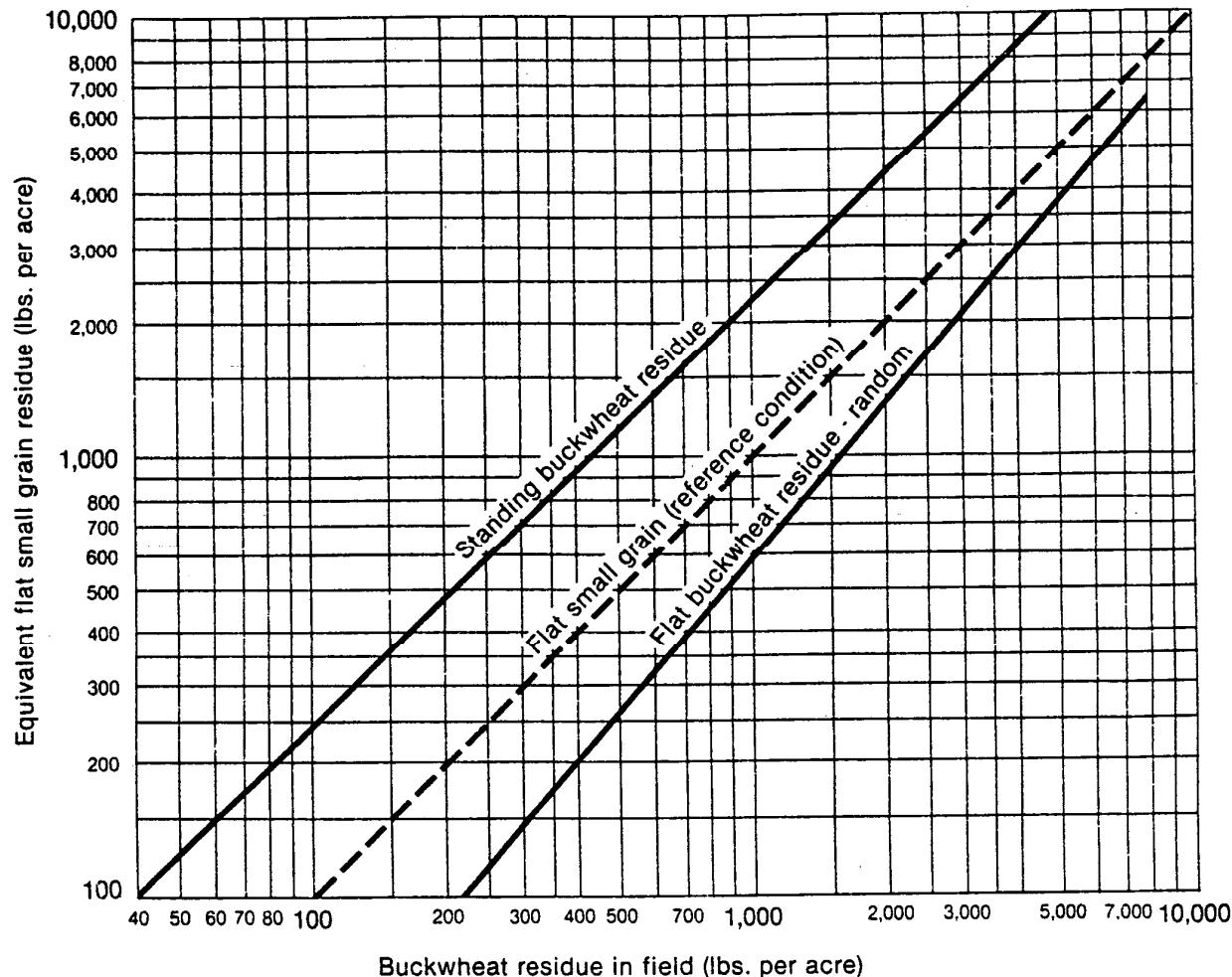
Source: Armbrust & Lyles, 1984-unpublished.

502-114

(190-V-NAM, Second Ed., March 1988)

Figure b-5

1985

**Flat Small Grain Equivalents Buckwheat Residue**

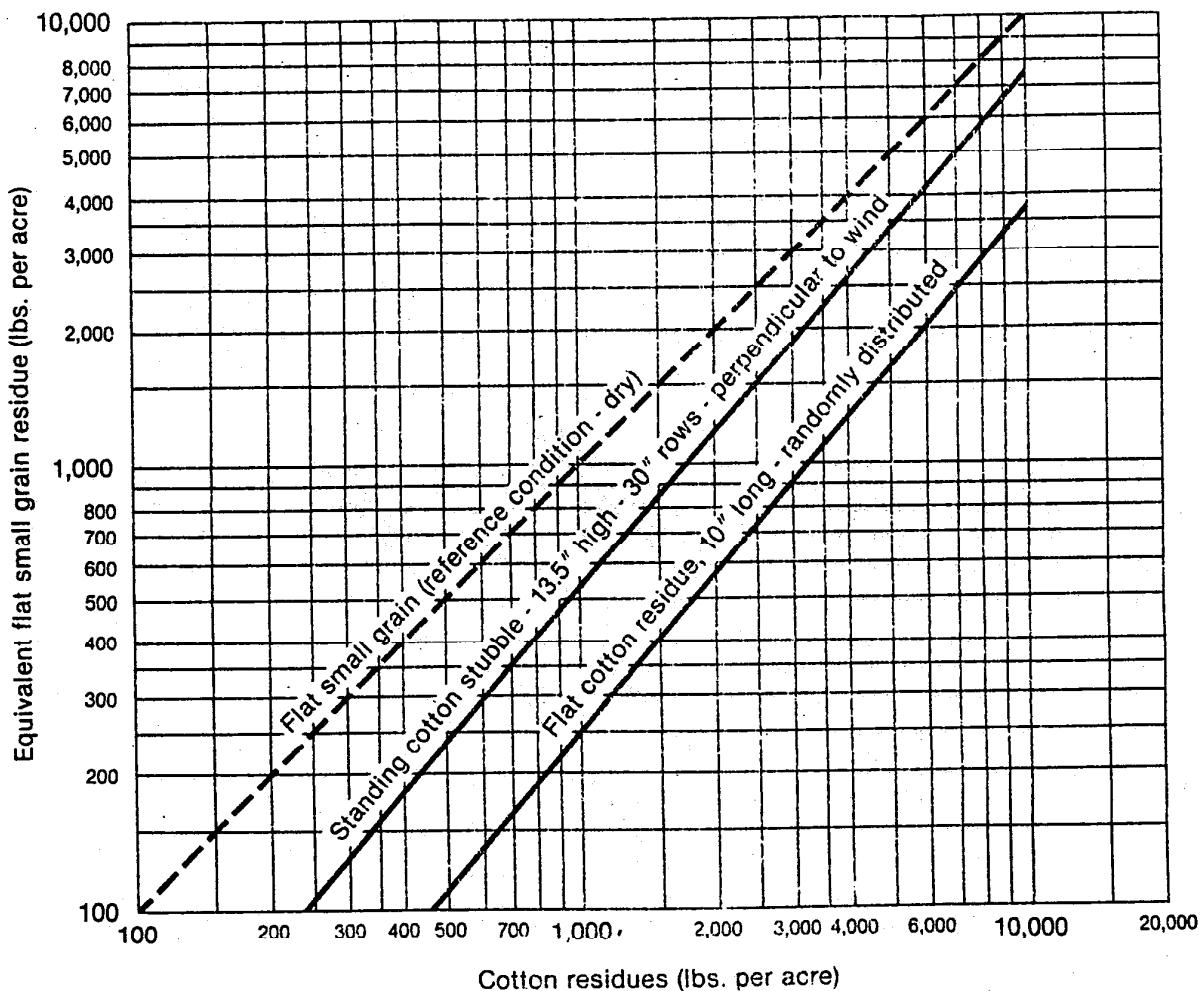
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

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

502.65(a-d)

Figure b-6

1985

**Flat Small Grain Equivalents of Cotton 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: Lyles and Allison, Trans. ASAE, 1981, 24(2): 405-408.

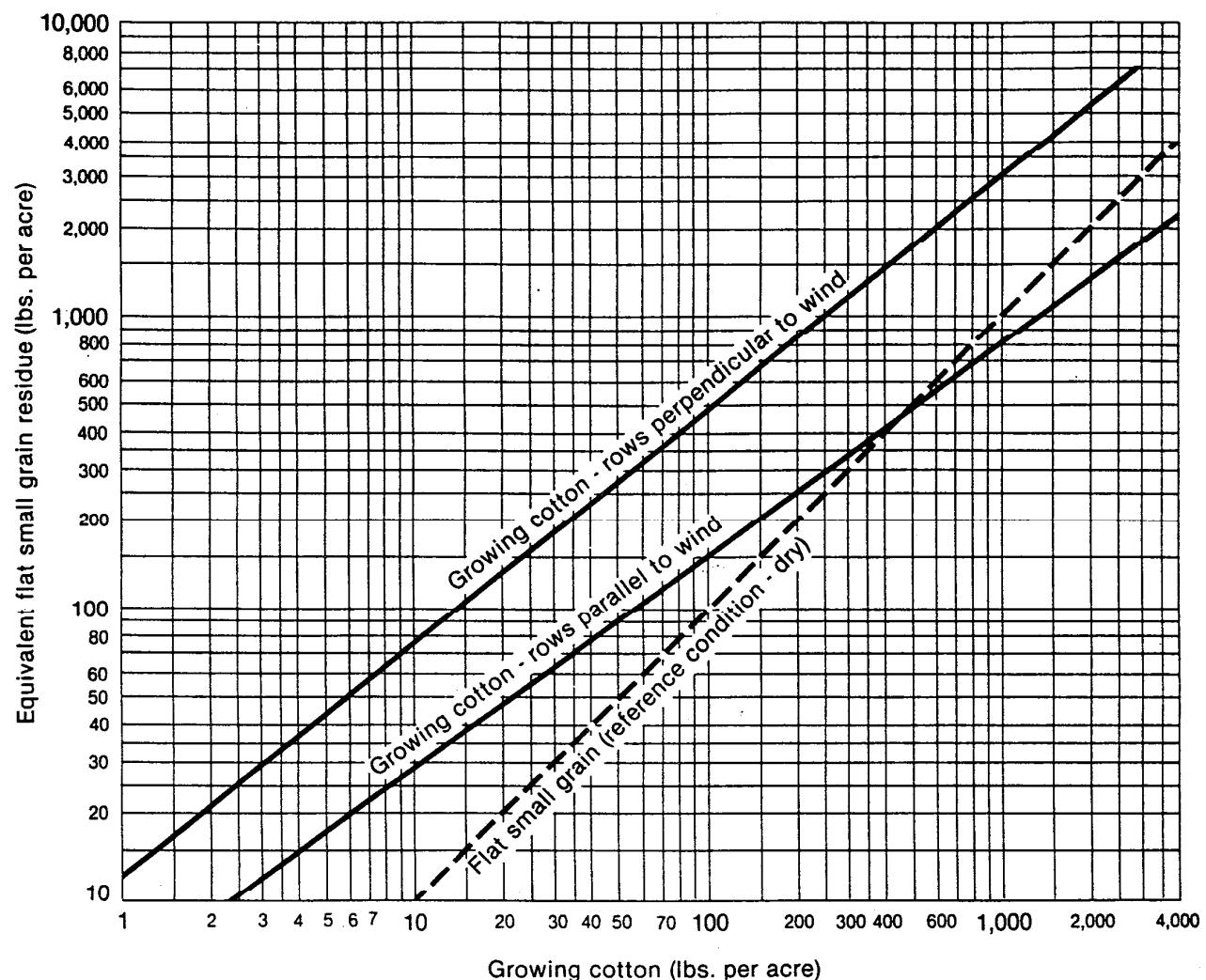
Residue wts. are washed & dried, placed as described for wind tunnel test.

502-116

(190-V-NAM, Second Ed., March 1988)

Figure b-7

1985

**Flat Small Grain Equivalents of Growing Cotton**

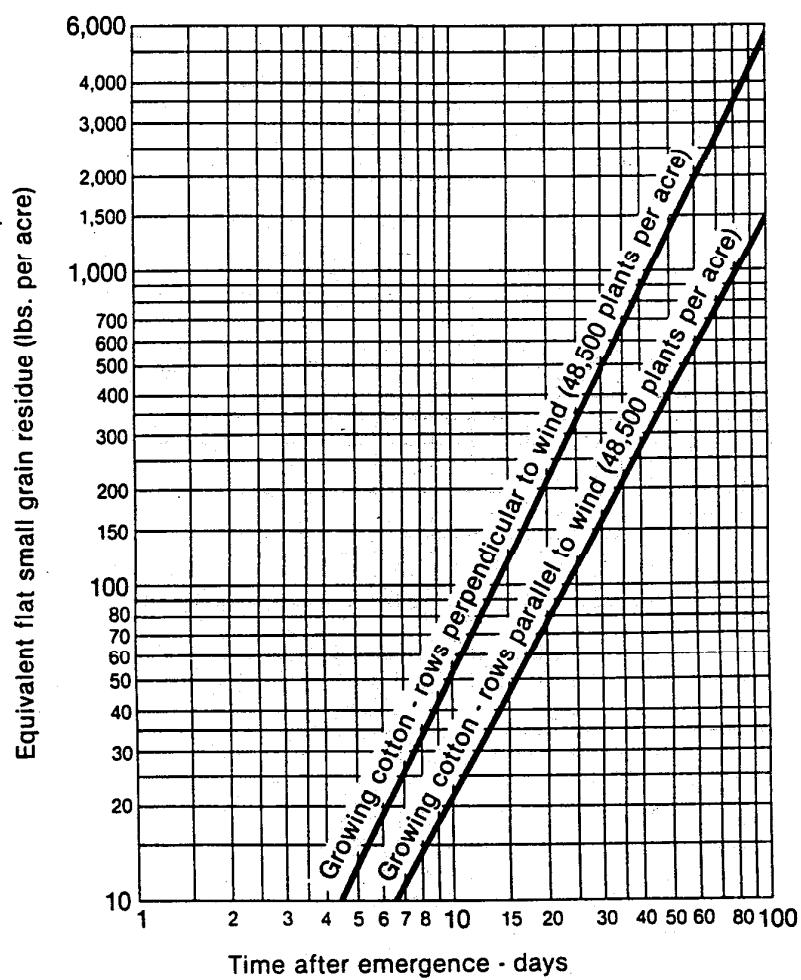
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

Source: Armbrust and Lyles, 1984-unpublished.

502.65(a-d)

Figure b-8

1985

**Flat Small Grain Equivalents of Growing Cotton: Days After Emergence**

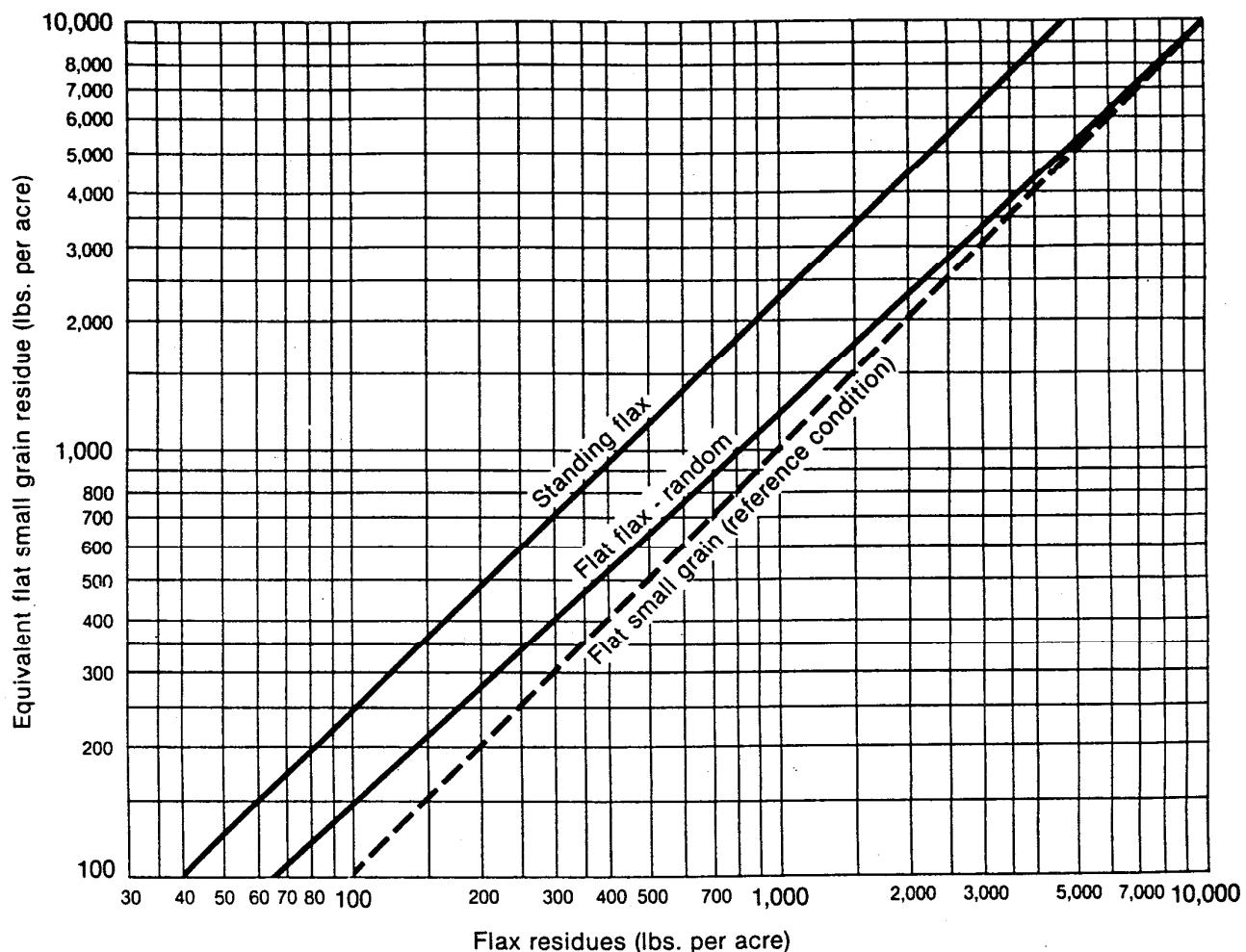
Source: Armbrust &amp; Lyles, 1984-unpublished.

502-118

(190-V-NAM, Second Ed., March 1988)

Figure b-9

1985

**Flat 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).

**Part 502 - Wind Erosion**

**502.65(a-d)**

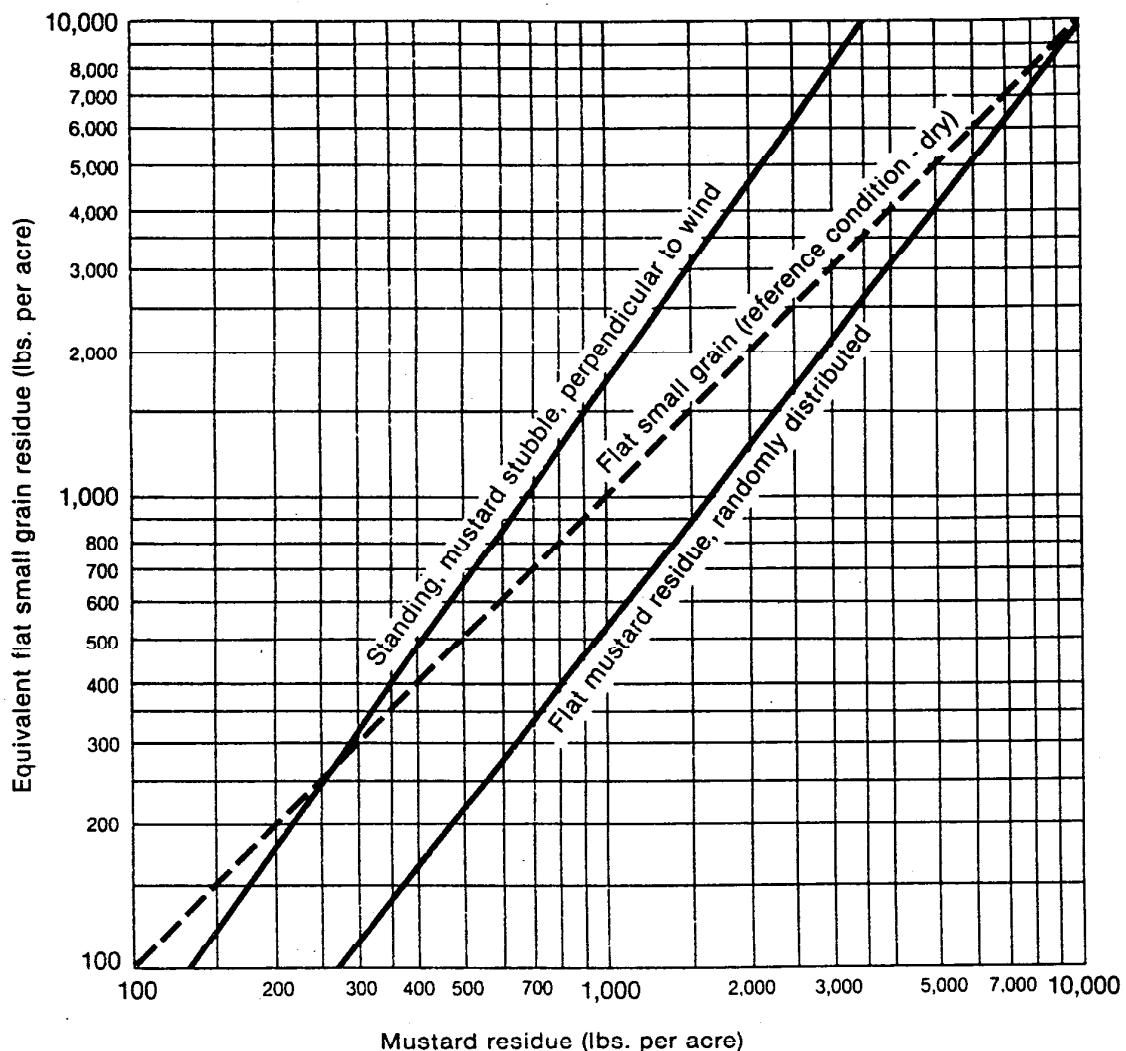
**(Reserved for Figure b-10, Flat Small Grain Equivalents of Mint and Turnip Residue)**

**502-120**

**(190-V-NAM, Second Ed., March 1988)**

Figure b-11

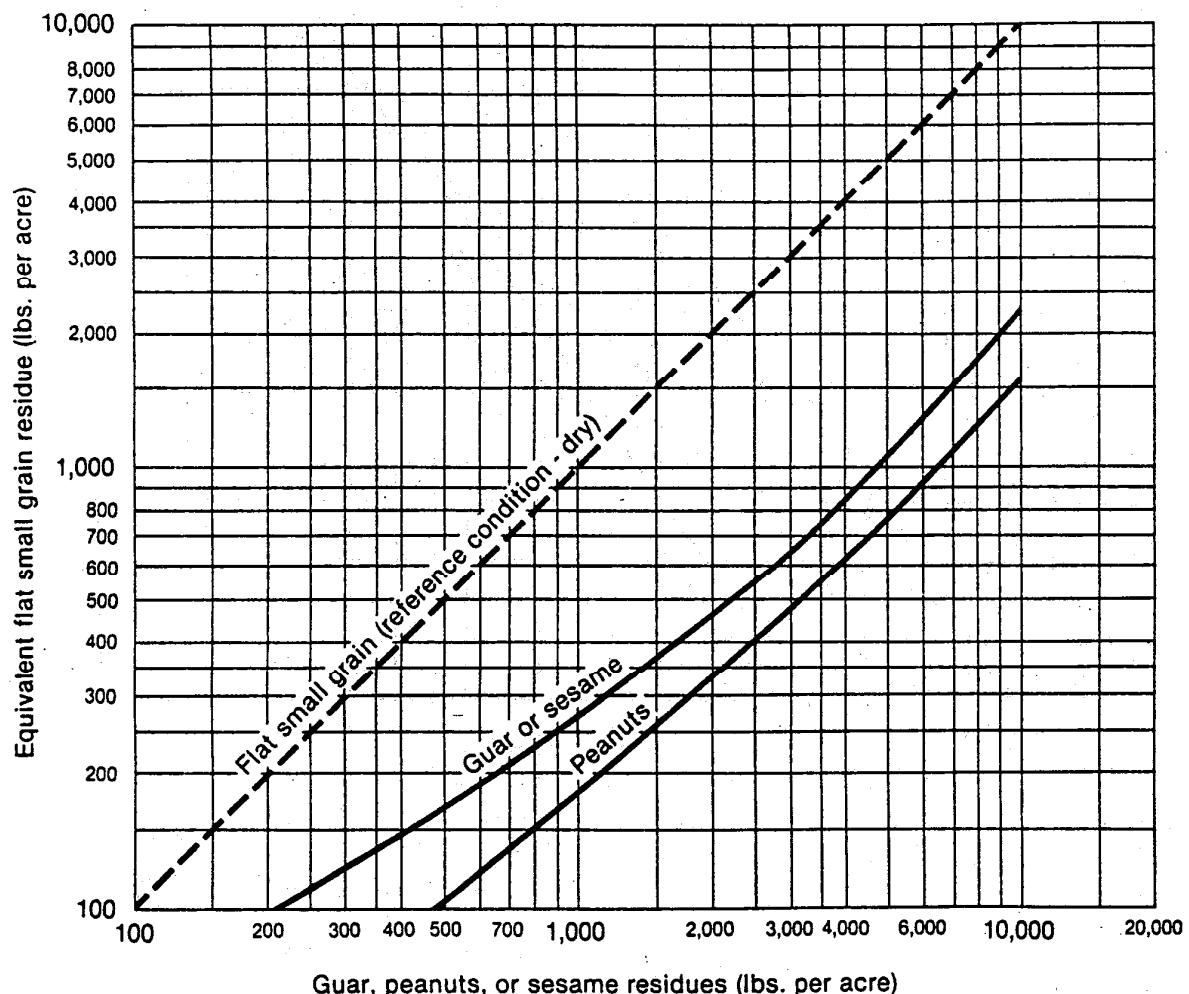
1985

**Flat Small Grain Equivalent Mustard Residue**

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

Figure b-12

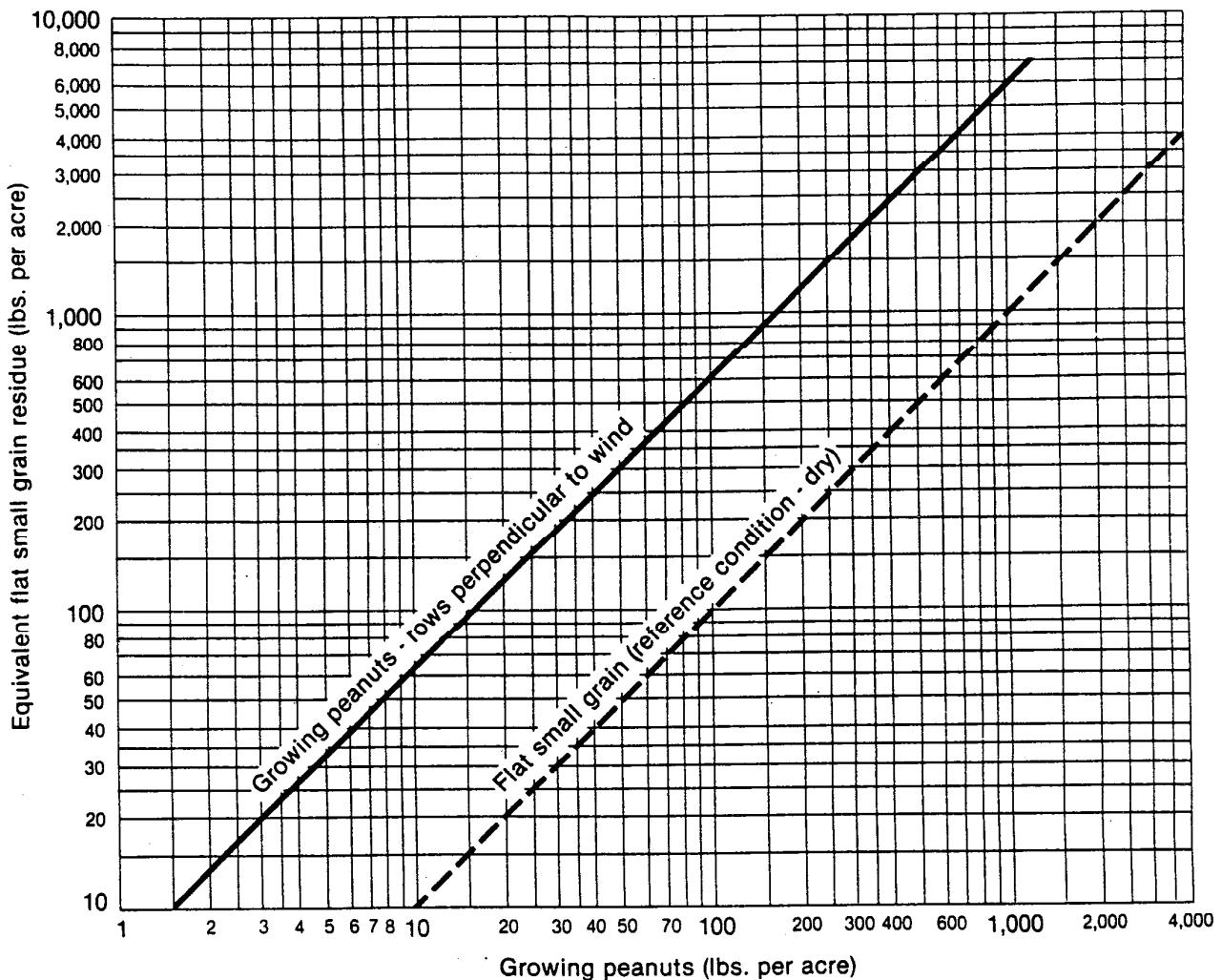
1985

**Flat Small Grain Equivalents of Peanuts, Guar, and Sesame Residues**

Source: Best Judgement Estimates by SCS.

Figure b-13

1985

**Flat Small Grain Equivalents of Growing Peanuts**

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: Armbrust and Lyles, 1984-unpublished.

502-123

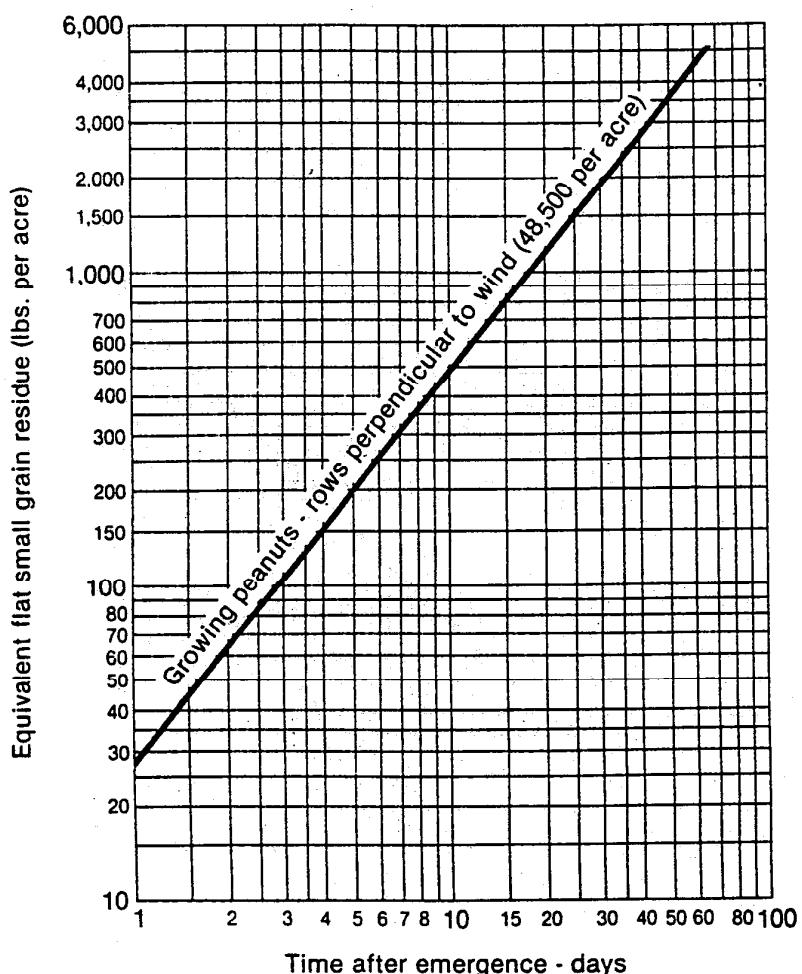
(190-V-NAM, Second Ed., March 1988)

502.65(a-d)

Figure b-14

1985

### Flat Small Grain Equivalents of Growing Peanuts: Days After Emergence



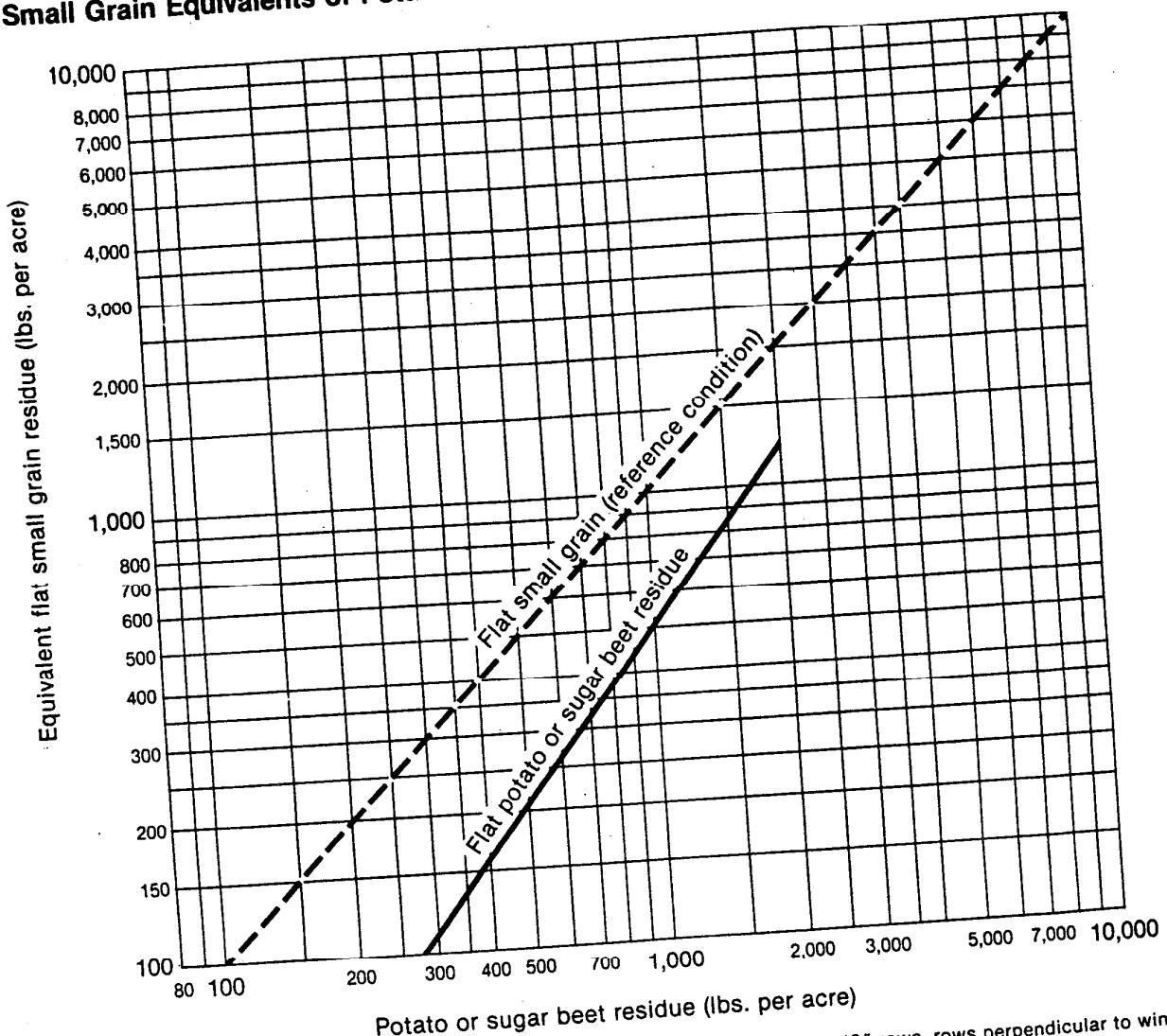
Source: Armbrust & Lyles, 1984-unpublished.

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(190-V-NAM, Second Ed., March 1988)

Figure b-15

### Flat Small Grain Equivalents of Potato and Sugar Beet Residue

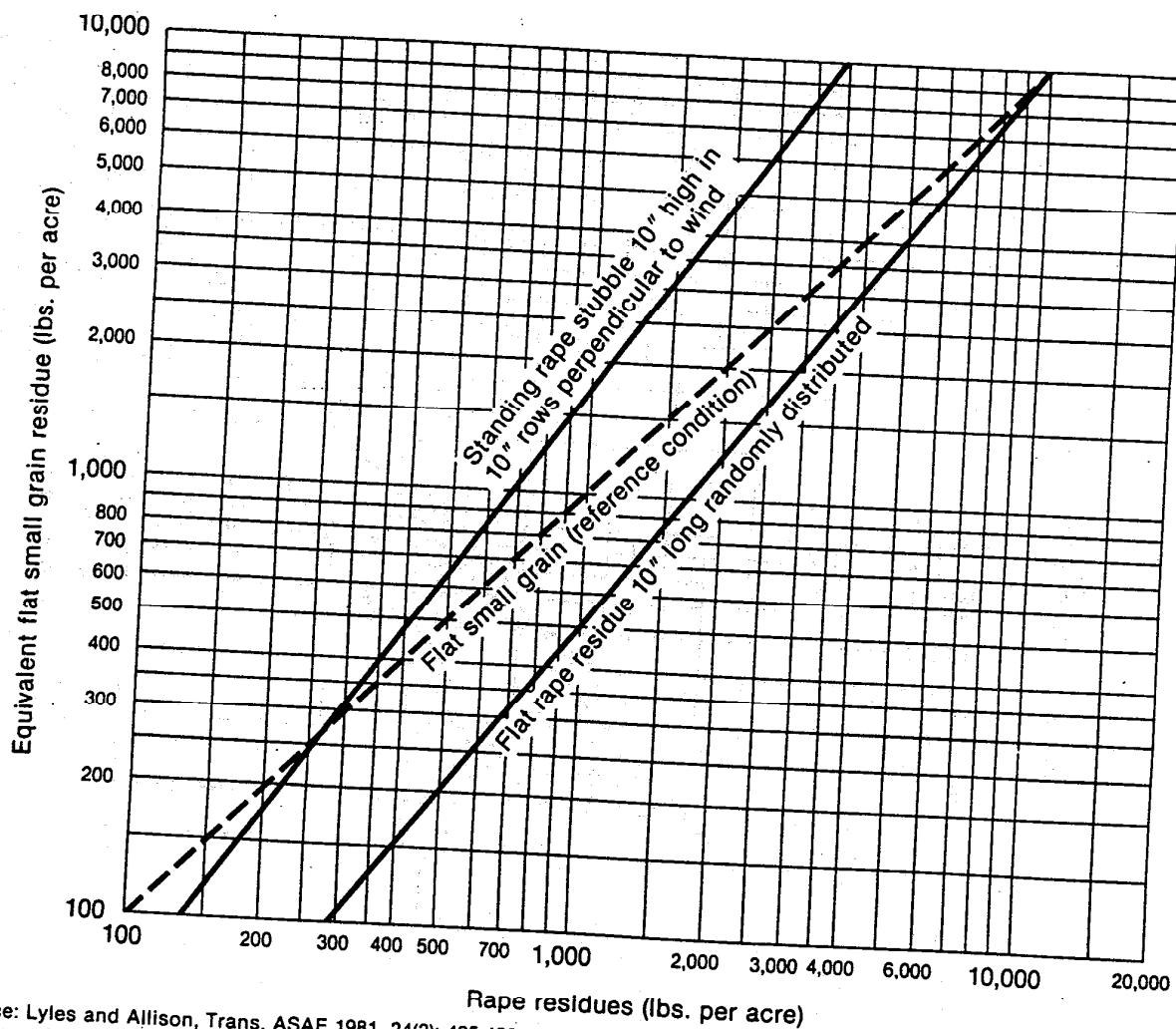


Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.  
 Source: Best Judgement Estimates by SCS, North Central Agronomists, 11/84.

Figure b-16

**Flat Small Grain Equivalents of Rape Residues**

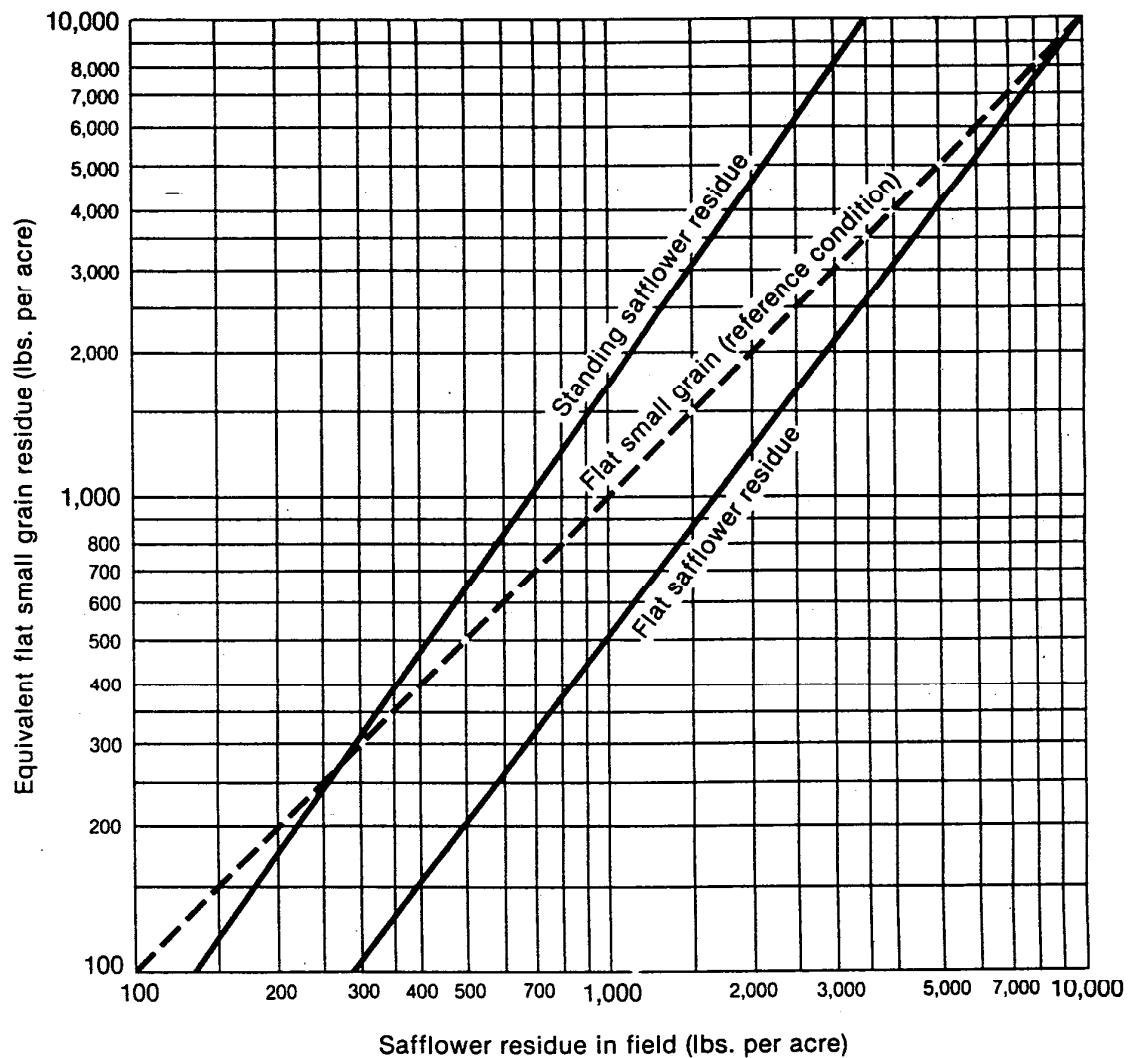
1985



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

Figure b-17

1985

**Flat Small Grain Equivalents Safflower Residue**

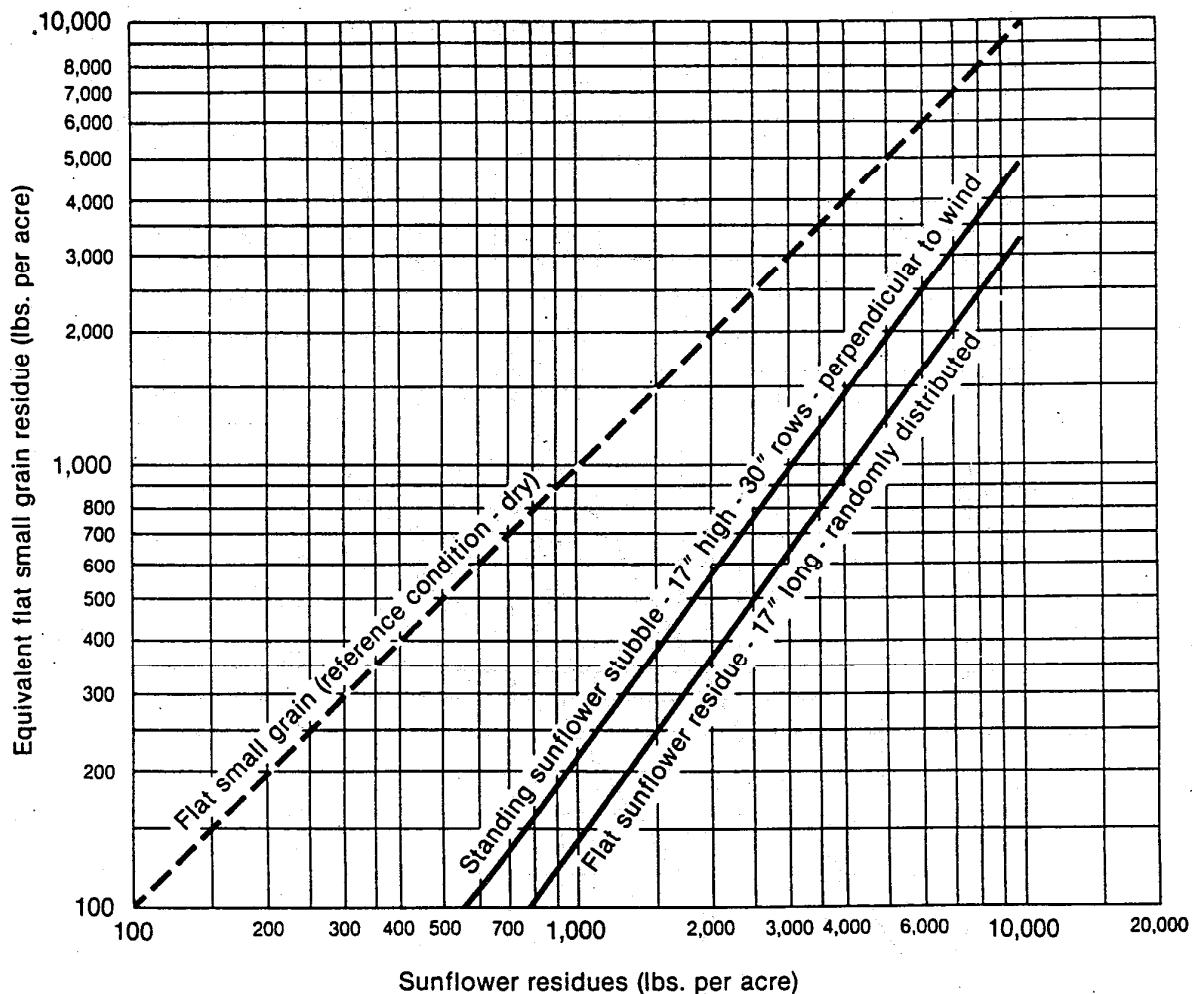
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

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

502.65(a-d)

Figure b-18

1985

**Flat Small Grain Equivalents of Sunflower Residues**

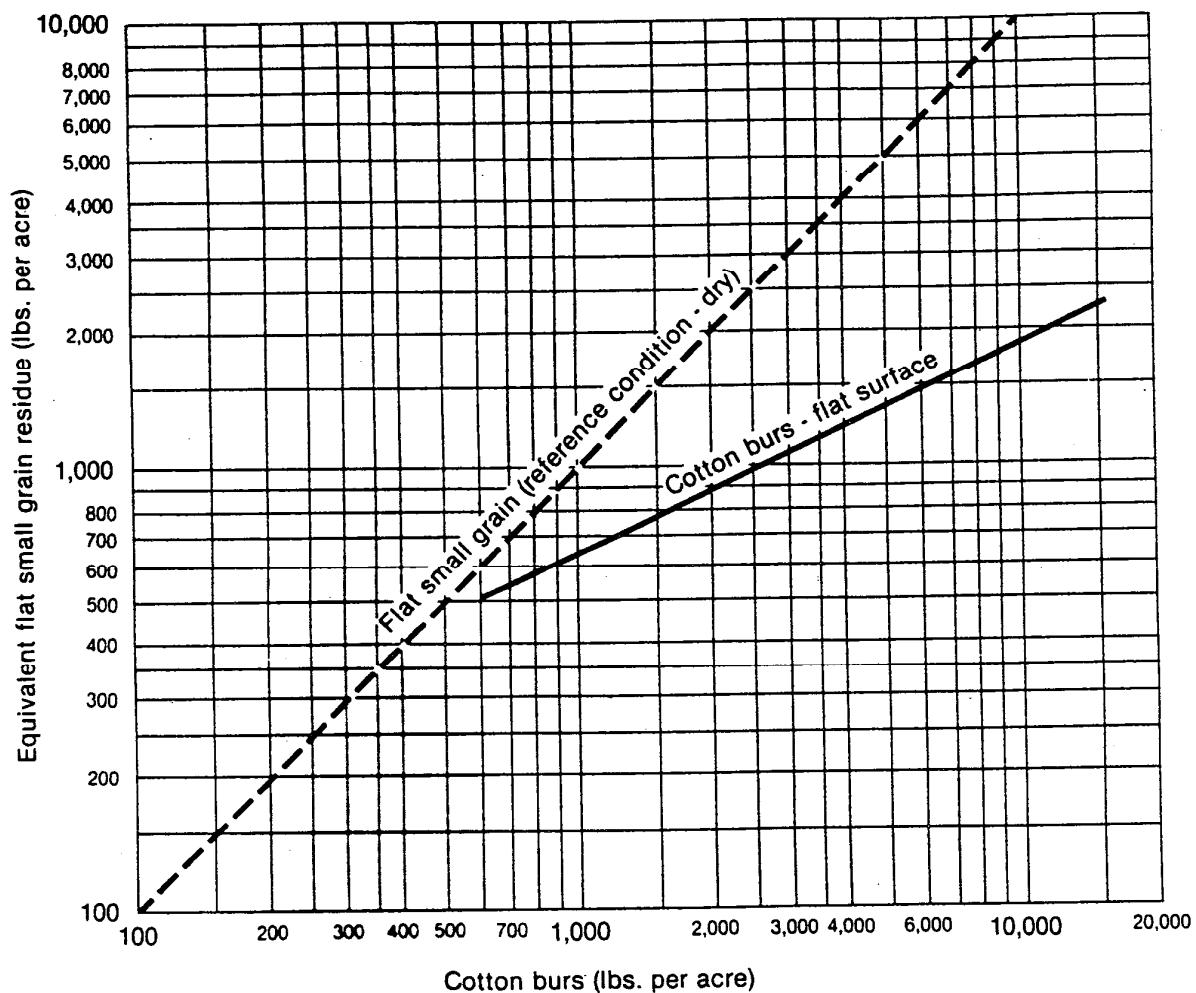
Source: Lyles and Allison, Trans. ASAE 1981, 24(2): 405-408.  
Residue wts. are washed, air dried, and placed as described for wind tunnel test.

502-128

(190-V-NAM, Second Ed., March 1988)

Figure c-1

1985

**Flat Small Grain Equivalent of Cotton Burs**

Source: Research by D.W. Fryrear, ARS, Big Spring, Texas

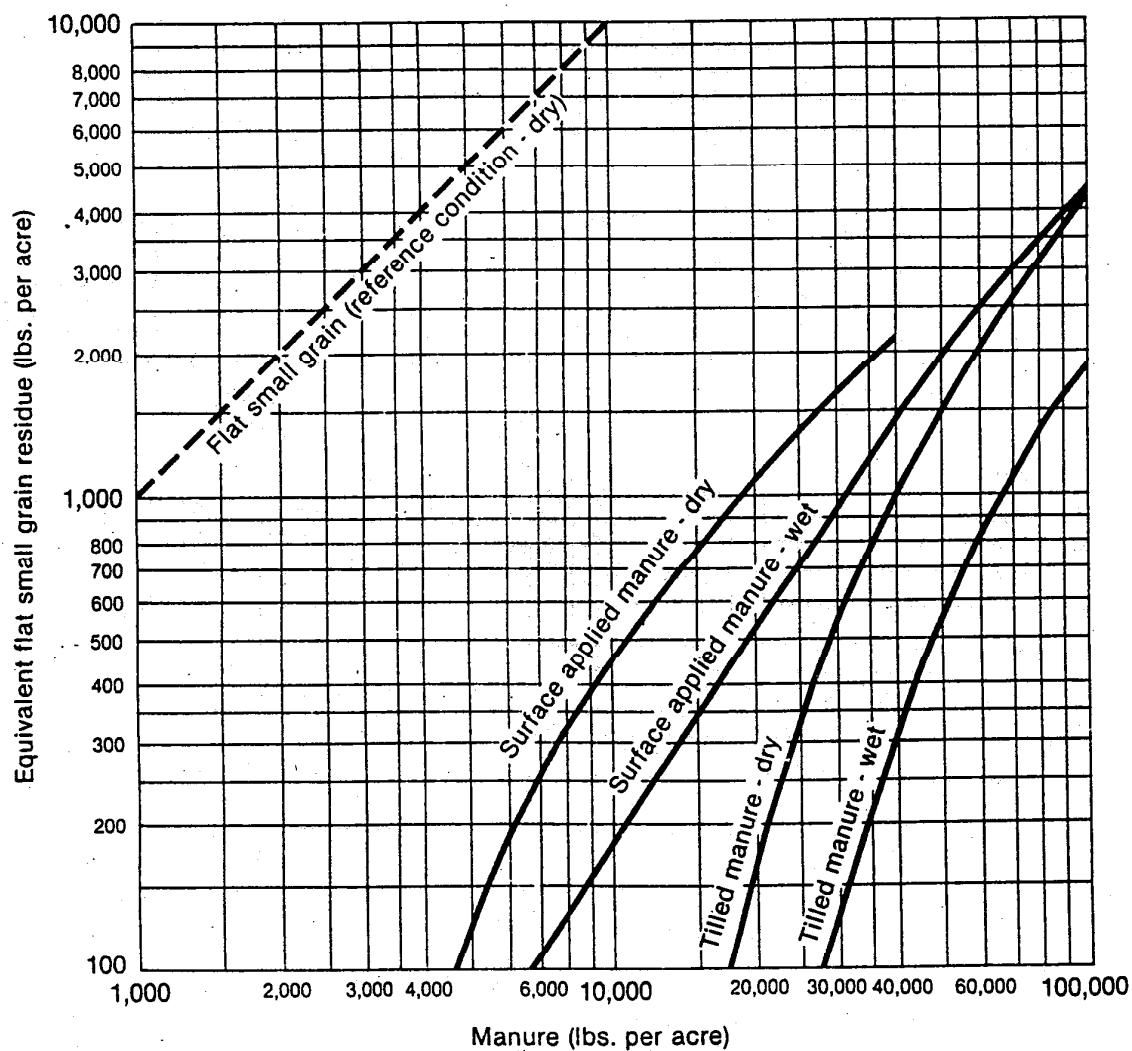
502-129

(190-V-NAM, Second Ed., March 1988)

502.65(a-d)

Figure c-2

1985

**Flat 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.

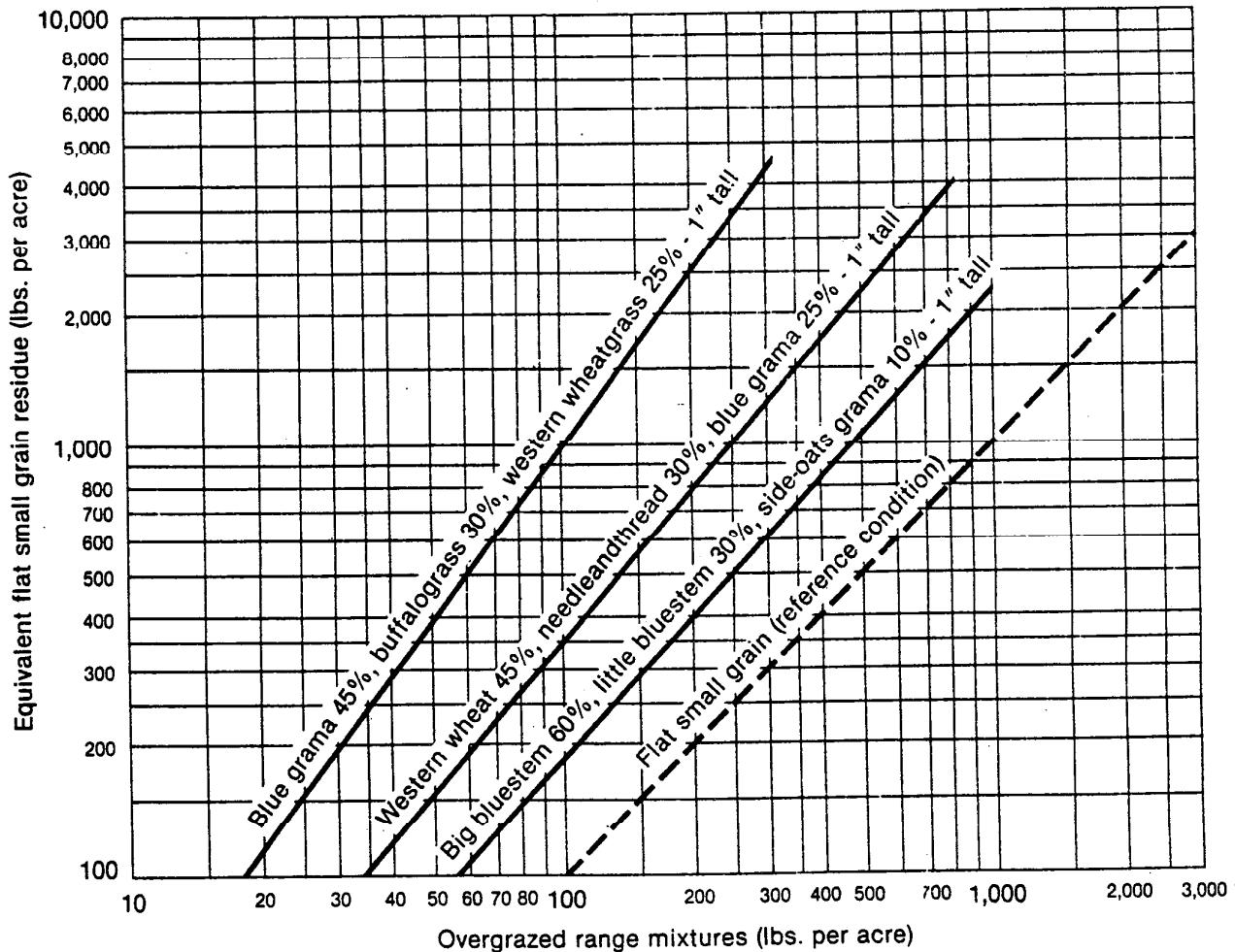
502-130

(190-V-NAM, Second Ed., March 1988)

Figure d-1

1985

**Flat 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.

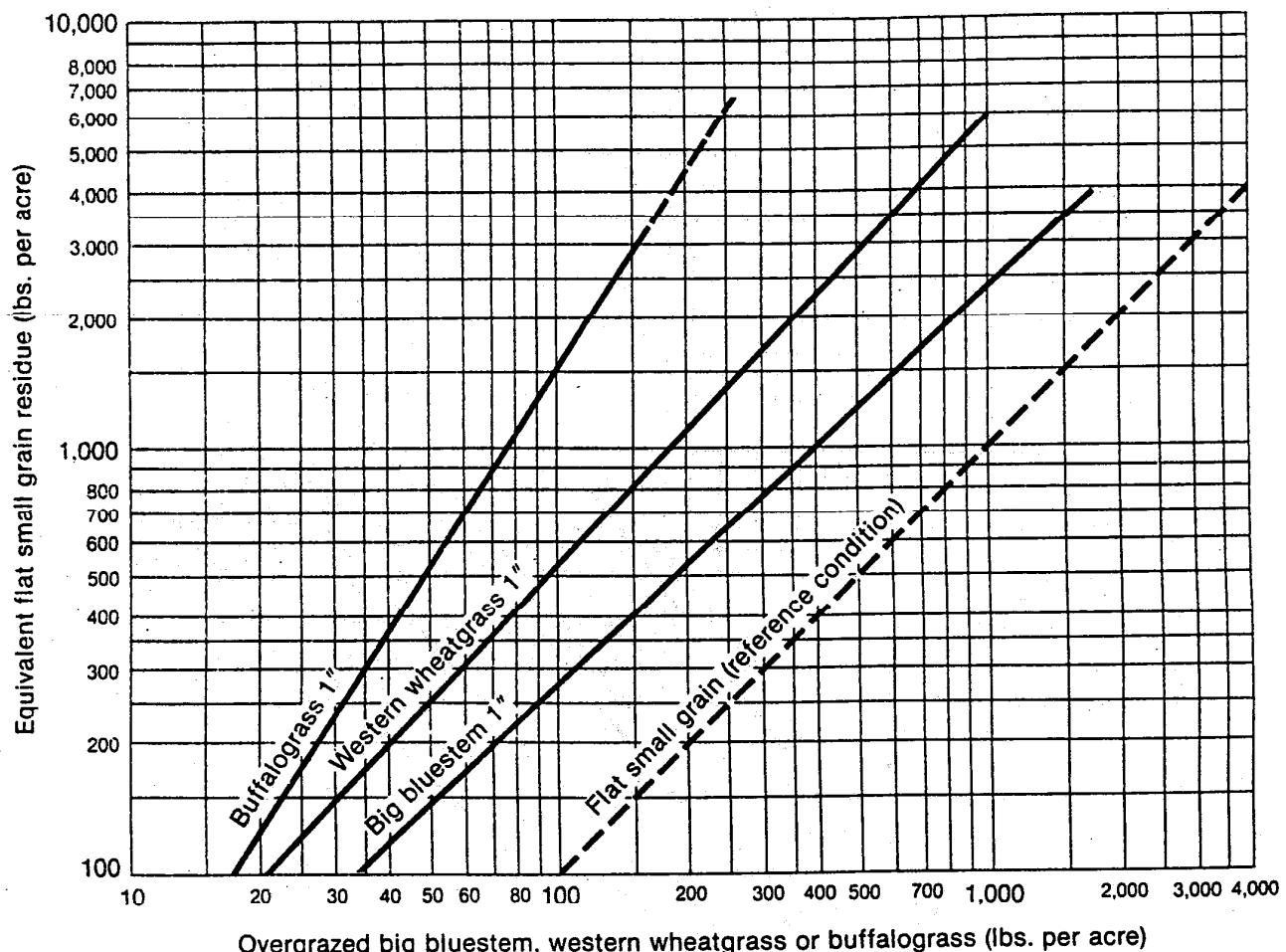
Source: Lyles and Allison - 1980 Journal Range Management, 33(2), pages 143 - 146.

502.65(a-d)

Figure d-2

1985

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



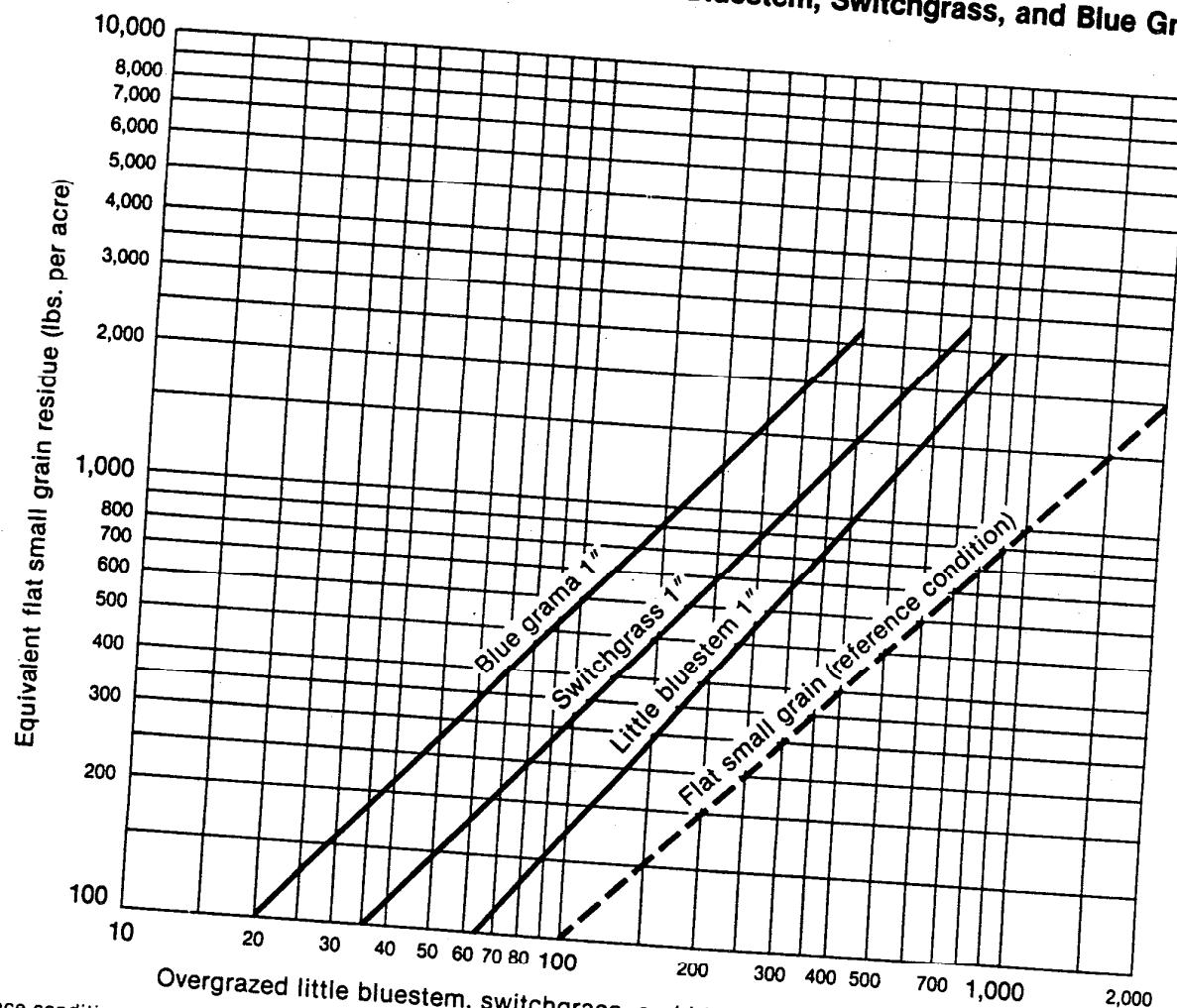
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

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

Figure d-3

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

1985



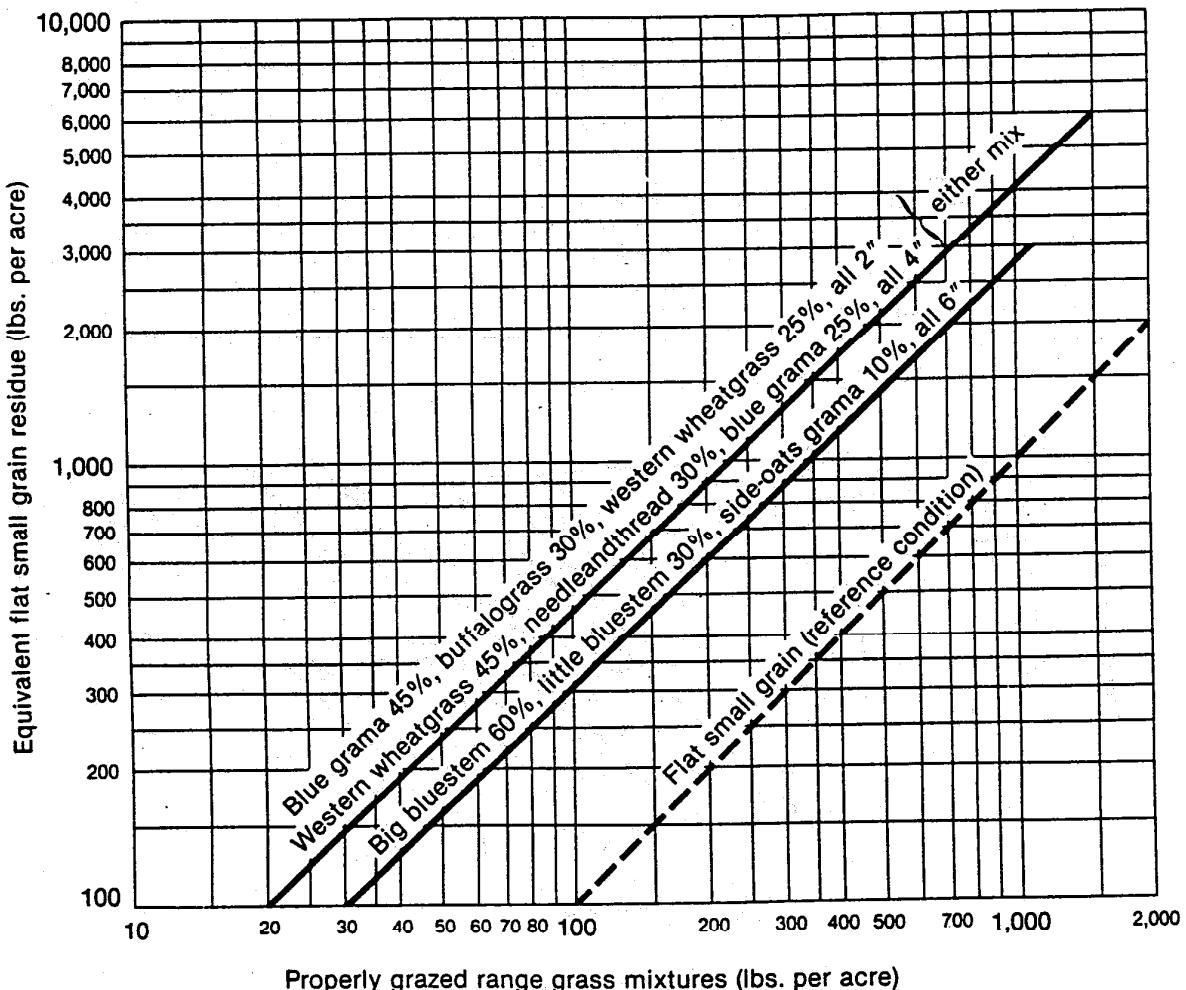
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

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

502.65(a-d)

Figure d-4

1985

**Flat 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.

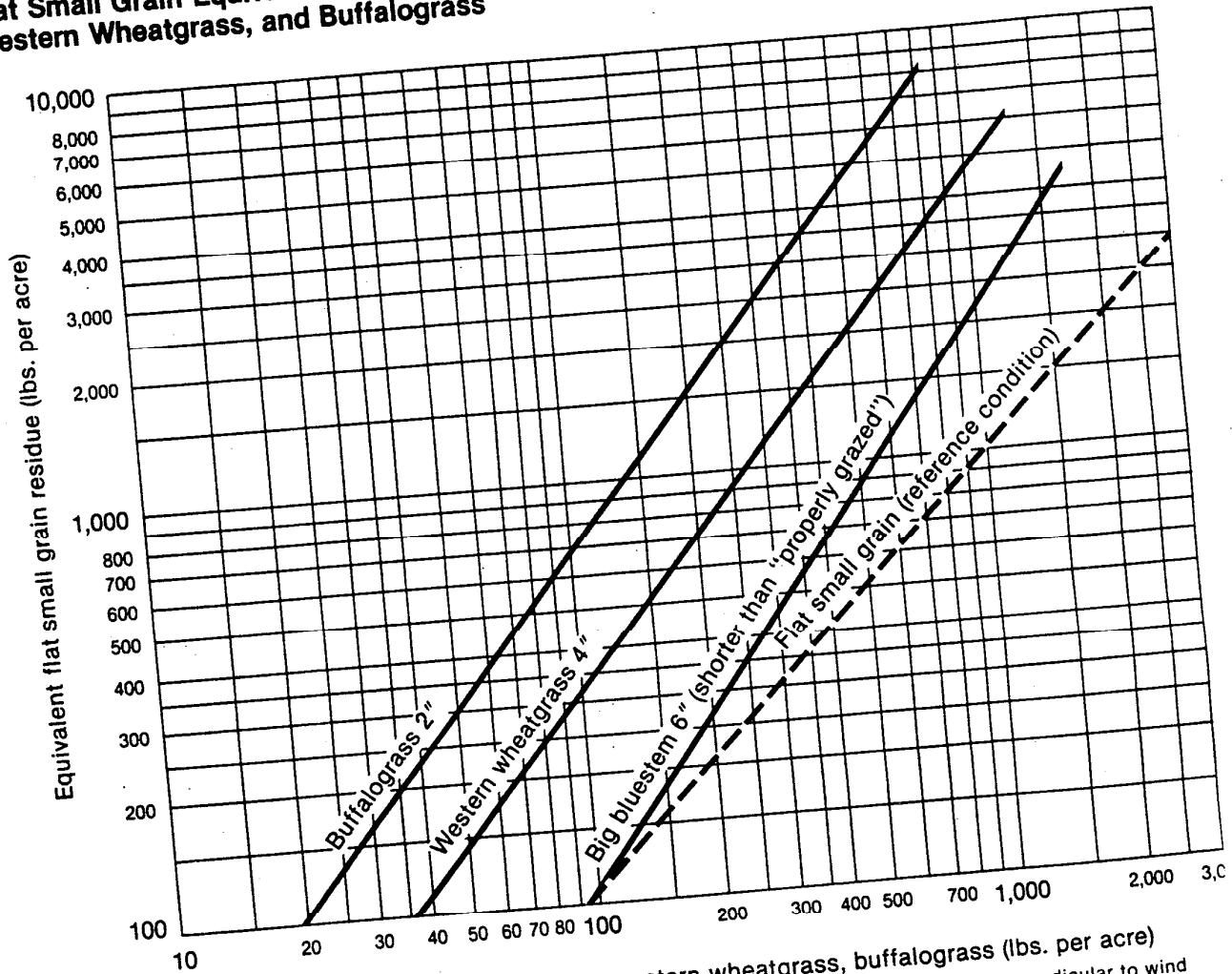
502-134

(190-V-NAM, Second Ed., March 1988)

1985

Figure d-5

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



Properly grazed big bluestem, western wheatgrass, buffalograss (lbs. per acre)  
 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.

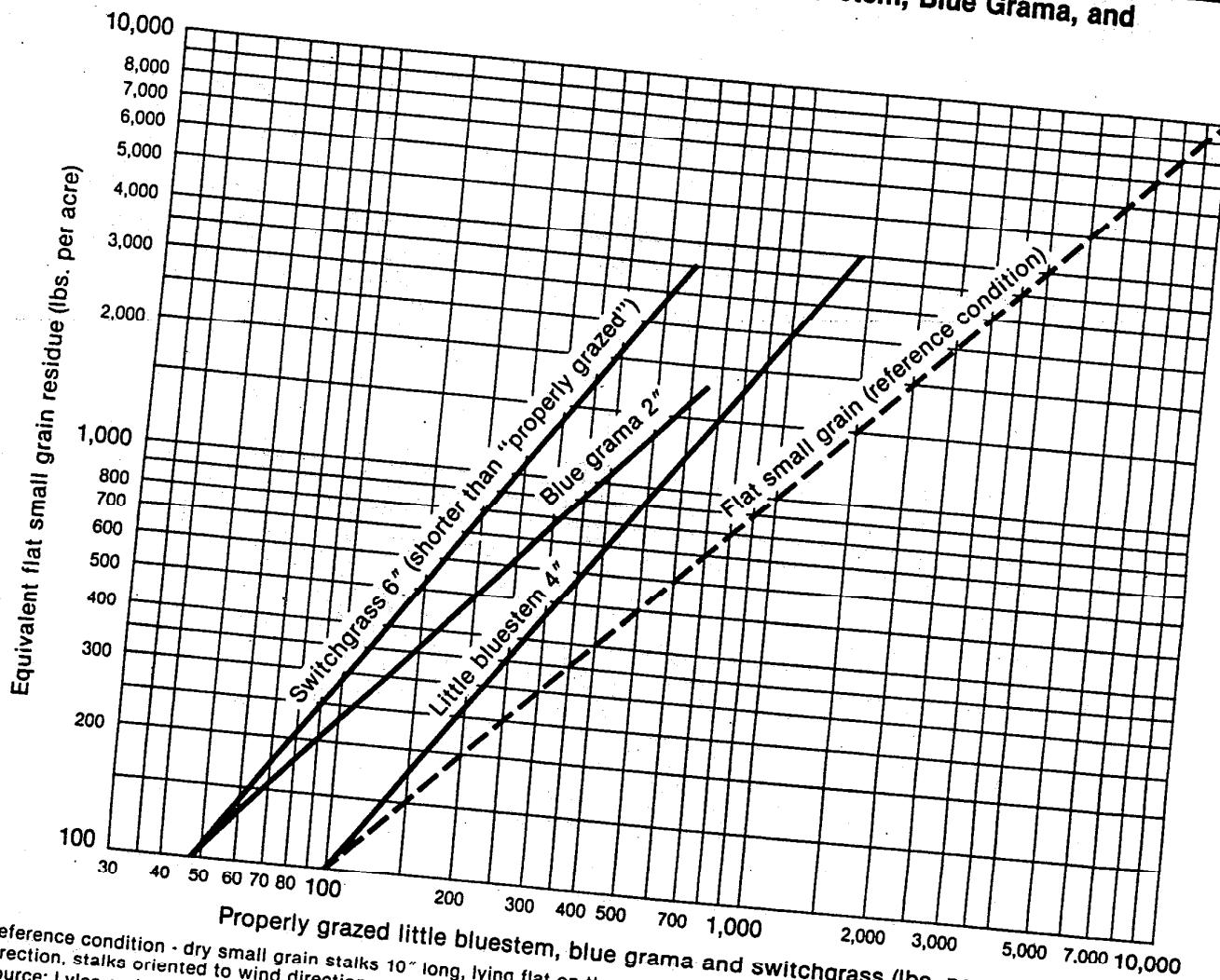
502-135

(190-V-NAM, Second Ed., March 1988)

Figure d-6

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

1985

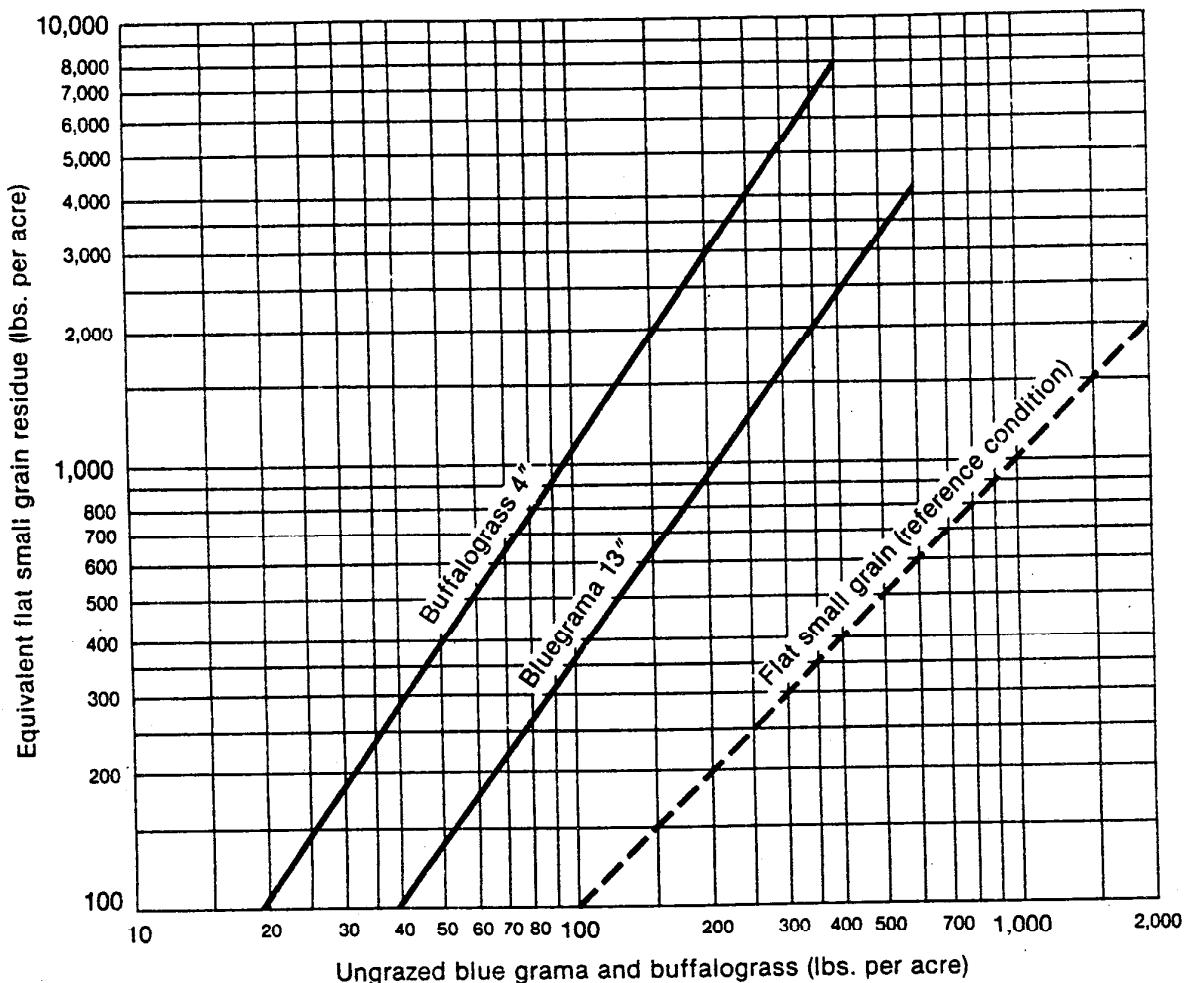


Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

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

Figure d-7

1985

**Flat Small Grain Equivalents of Ungrazed Blue Grama and Buffalograss**

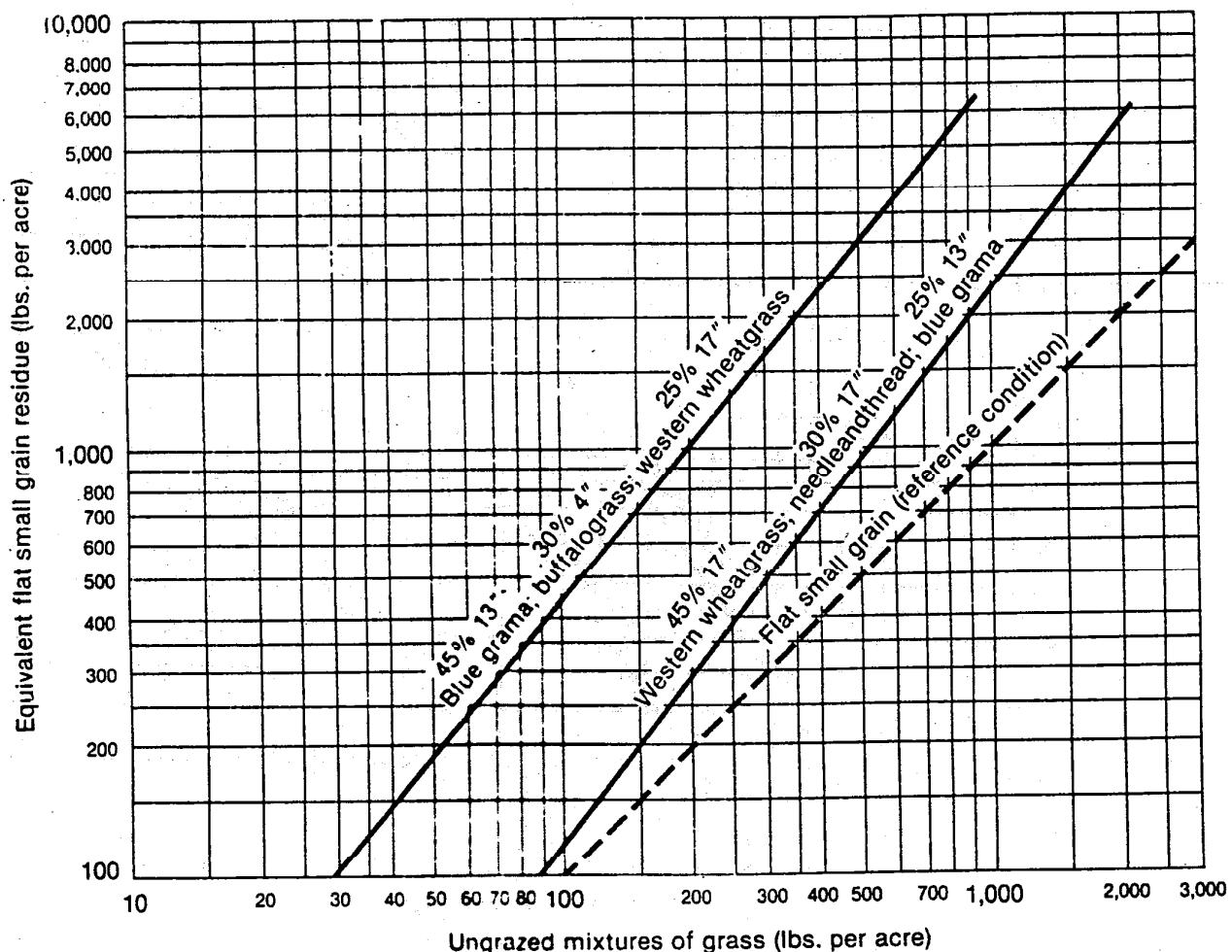
Reference condition - dry small grain stalks 10" long, lying flat on the soil surface in 10" rows, rows perpendicular to wind direction, stalks oriented to wind direction.

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

Figure d-8

1985

**Flat 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.

TABLE 7 (continued)  
ESTIMATED POUNDS OF FLAT SMALL GRAIN RESIDUE  
EQUIVALENT OF VARIOUS SURFACE COVER

	Pounds per acre of Range Vegetation <sup>1/</sup>										
	50	100	200	300	400	500	600	700	800	900	1000
<u>SHRUBS ~ (Figure in () are approximate % of canopy cover)</u>											
Big sagebrush	30(5)	70(10)	250(20)	450(25)	600(30)	900(40)	1200(50)	1600(60)	2000(65)	2500(70)	
Low sagebrush	50(5)	100(10)	300(20)	500(30)	800(40)	1300(50)	1800(60)	2500(70)			
Sand sagebrush		100(10)	300(20)	600(30)	1000(40)	1300(50)	1800(60)	2800(70)			
Greasewood & fourwing saltbush	20( 5)	60(5)	100(10)	300(20)	450(25)	600(30)	900(40)	1200(45)	1500(50)		
Shinnery	70(5)	150(10)	400(20)	900(30)	1200(40)	1500(50)	1800(60)	2100(70)	2400(80)	2700(90)	
Snakeweed	30(5)	70(10)	250(20)	450(25)	700(30)	1000(40)	1300(50)	1700(60)	2100(65)		
Rabbitbrush	30(5)	70(10)	250(20)	450(25)	700(30)	1000(40)	1300(50)	1700(60)	2100(65)		
Shadscale	30(5)	50(10)	200(20)	350(30)	700(40)	1100(50)					
Creosotebush	20(5)	70(10)	250(20)	400(25)	600(30)	800(40)	1000(50)	1400(60)			
Shrub oak	0(5)	100(10)	300(20)	600(30)	1200(40)	1800(50)	3000(60)				
Mesquite	20(5)	50(10)	200(20)	300(25)	400(30)	500(35)	600(40)	800(45)	1200(50)	1800(60)	2400(70)
Juniper	40(§5)	90(5)	150(10)	250(20)	450(30)	800(40)	950(45)	1400(50)	2000(55)	2700(60)	3600(70)
Cholla <sup>2/</sup>	0(10)	50(20)	100(30)	250(40)	350(45)	500(50)	700(60)	950(70)	1300(80)		
Yucca <sup>2/</sup>	0(10)	70(20)	150(25)	250(30)	400(35)	600(40)	750(45)	900(50)	1200(60)	1500(70)	
Winterfat	40(5)	100(10)	300(20)	500(30)	800(40)	1400(50)	1800(60)	2300(70)	3000(80)		
Desert Pavement <sup>3/</sup>	0(10)	200(20)	400(30)	600(40)	1000(50)	1400(60)	1800(70)	2400(80)	3000(90)		
Litter <sup>4/</sup>	50	100	200	300	400	500	600	700	800	900	1000

1/ Total annual leaf and twig growth/air-dry weight. Woody production not included in these weight figures.

2/ Include all leaf and fibrous material.

3/ Ignore the pounds per acre figures and use only the percent for figuring desert pavement SGe's. Desert pavement includes stones on the surface. Stones buried or partially buried, are included as part of the "I" factor.

4/ Litter should include leaves, twigs, and stems up to 1/2 inch in diameter. Forb and shrub small grain equivalents are personal judgement only. No research data is available to support these figures.

TABLE 7  
ESTIMATED POUNDS OF FLAT SMALL GRAIN RESIDUE  
EQUIVALENT OF VARIOUS SURFACE COVER

	Pounds per acre of Range Vegetation <sup>1/</sup>						
	50	100	200	300	400	500	600
<u>GRASS PLANTS</u>							
Buffalograss, burrograss, and inland saltgrass	300	690	1550	2500	3500		
Big bluestem	50	110	280	450	650	900	1200
Western wheatgrass	140	325	700	1200	1600	2100	2550
Little bluestem	50	100	260	480	690	940	1250
Blue grama, sideoats grama	110	230	500	780	1100	1300	1700
Galleta and tobosa	240	600	1500	2700	4000	5500	
Bottlebrush squirreltail and needleandthread	50	100	260	470	680	940	
Alkali sacaton	110	230	500	780	1400	2200	2800
Bluebunch wheatgrass	50	120	300	550	850	1150	1500
Idaho fescue	100	200	400	900	1500	2300	
Indian ricegrass	50	110	260	460	660	890	
Crested wheatgrass	140	320	700	1200	1600	2100	2600
Cheatgrass	110	225	500	780	1100	1400	1700
<u>FORBS</u>							
Perennial forbs	50	100	300	500			
Annual forbs	50	100	200	300	500	800	1000

<sup>1/</sup> If grass species is not listed, use the grass with the closest equivalent growth form.