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To the Graduate Council:

I am submitting herewith a thesis written by Rodney J. Creel entitled "Yield and quality responses of summer annual grasses to different management regimes." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Plant, Soil and Environmental Sciences.

Henry A. Fribourg, Major Professor

We have read this thesis and recommend its acceptance:

John H. Reynolds, Daniel L. Coffey

Accepted for the Council: Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

To the Graduate Council:

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John H Reynolds David L. Coffey

Accepted for the Council:

Vice Chancellor

Graduate Studies and Research

Ag-VetMed

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YIELD AND QUALITY RESPONSES OF SUMMER ANNUAL GRASSES

TO DIFFERENT MANAGEMENT REGIMES

A Thesis

Presented for the

Master of Science

Degree

The University of Tennessee, Knoxville

Rodney J. Creel

December 1978

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ABSTRACT

Sorghum-sudangrass hybrids (Sorghum bicolor (L.) Moench) and improved pearlmillets (Pennisetum americanum (L.) Leeke) produce large amounts of forage in summer when most cool season forage crops have slowed production.

To determine some plant and environment characteristics and the extent of cultivar x management interaction over a broad spectrum of managements, four summer annual grass cultivars were subjected to 19 different defoliation frequency and stubble height managements at Knoxville, Tennessee in 1976 and 1977. The cultivars were Chowmaker 235, Sweet Sioux III, FS-531 sorghum-sudangrass hybrids, and Millhy 99 pearlmillet. The plots were sidedressed with nitrogen (N) twice during the summer and two samples were taken at each harvest, one large one to determine DM production, and a smaller one for determination of leaf area, dry weights of representative parts, meristem heights, N content and in vitro dry matter digestibility (IVDMD). Predictive models were developed for yield at each harvest, regrowth per day (kg/ha/day), total N percent and IVDMD.

Quality, morphological characteristics, and quantity of DM produced varied with year, management, and cultivar. The sorghum-sudangrass hybrids outyielded the pearlmillet when harvested later than the 90-cm height, but high quality and similar yields (10 metric tons/ha) were obtained when harvested at 90 cm.

When cut at 90 cm, stubble heights of 15- or 8-cm had no effect on yields or IVDMD, and resulted in similar N content. However, a 90-cm harvest cut to 15- or 8-cm stubble before a boot or early bloom harvest resulted in greater season yields for Chowmaker than for Sweet Sioux. Generally, Chowmaker performed best when cut to 15-cm stubble, and Sweet Sioux when cut to 8-cm stubble, when the stage of growth at harvest was earlier than the boot stage.

The pre-boot, boot or early bloom harvests were delayed by a previous 90-cm harvest for all cultivars, and N content sometimes was
increased. A previous 50-15 cm harvest before an early bloom or boot
harvest delayed the early bloom and boot harvests of FS-531, but did
not delay those of the other sorghum-sudangrass hybrids and pearlmillet.
These had greater N content as a consequence of the previous cut. The
first pre-boot stage harvest of Sweet Sioux following a 50-15 cm harvest
also had a larger N percent than the first pre-boot harvest of plants
managed 'PB-15'. Material harvested at more mature or taller stages of
growth were low in total N percent but relatively high in IVDMD.

The number of days since March 1, average plant height and the number of days during regrowth all were important predictors of harvested yields, daily regrowth, total N and IVDMD. These four dependent variables were increased as the number of days during growth increased, except for the daily regrowth in the Chowmaker model. As average plant height at harvest increased, yields and daily regrowth increased, but N percent and IVDMD generally decreased. The number of days of regrowth generally increased yields and decreased all the other dependent variables.

Chowmaker plants performed best when growth before the boot stage was cut to 15-cm stubble. The performance of plants generally was related to rainfall, and many of the managements studied were suitable. Management '50-15, EB-8, 75-15' was favorable for quality and yield. Sweet Sioux plants performed best when growth was cut to 8 cm, and the dependent variables were related not only to the three independent variables listed above, but also cumulative rainfall and temperature.

The number of days of regrowth was related to all the dependent variables for FS-531. FS-531 plants yielded more than other cultivars when allowed to reach taller stages.

In addition to the number of days since March 1, the number of days for regrowth, and average plant height, leaf area of the stubble also were important in the Millhy models. This cultivar was not responsive to management.

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INTRODUCTION

Sorghum sudangrass hybrids (Sorghum bicolor (L) Moench) (6) and improved pearlmillets (Pennisetum americanum (L.) Leeke) are important in forage programs because they produce large amounts of high quality forage in summer when most cool season forage crops have slowed production. Approximately 100,000 acres are grown in Tennessee, and although this acreage is not expanding, more information is constantly needed on new cultivars and ways of managing specific cultivars. Variety trials are limited in their approach to determining superior genotypes, since usually only one or two managements are used to compare genotypes. If there exists a cultivar x management interaction, then some cultivars may be penalized when compared to others because they are studied according to only one management scheme.

The objectives of this study were to determine the extent of cultivar x management interaction over a broad spectrum of managements, to find some of the managements better suited to specific cultivars, and to evaluate some of the plant and environment characteristics which affect these cultivar x management interactions.

CHAPTER I

LITERATURE REVIEW

Sorghum x sudangrass hybrids and certain improved pearlmillets have the capability of producing high quality forage in mid-to-late summer when cool-season perennials have low production (11, 7). Dairy and some beef operations can benefit from the relatively higher yields of crude protein (CP)/ha and in vitro dry matter digestibility (IVDMD) obtainable from these grasses than from perennial grasses or unimproved pastures. These plants are sometimes seeded as emergency crops when other crops fail or a feed shortage exists (16).

I. PLANTING DATE

Generally, planting of sorghum soon after the last expected frost results in higher yields than later planting, especially if available soil moisture is high. Pearlmillet should be planted a week later because of its sensivity to frost and cold (12, 19). If moisture becomes limiting after planting and germination, growth will be delayed and lower yields may result (19).

II. YIELDS

Dry matter yields of summer annuals tend to be higher when cut fewer times (such as three cuts instead of four) so that the sorghum or perlmillet will grow taller and reach a more mature stage of growth (2, 4, 28). Increasing the number of harvests reduces dry matter (DM)

production potential, partly because of loss of vigor and stand reduction (2, 26). Tomeu found DM percent increased in some forage sorghum cultivars from the first to the fifth harvest (26).

Many investigators have found regrowth occurs faster at higher stubble heights (16) and that regrowth generally decreases with each additional uniform cutting (7, 26, 4). In contrast, Burger et al. (4) found that no yield advantage existed when 15.2 cm stubble was used instead of 7.6 cm. Most of the growth of summer annual grasses occurs during the first six to eight weeks after planting before it is cut (19). Pearlmillet has a relatively short growing season; production of regrowth fluctuates widely, so that it is difficult to maintain a given grazing pressure (17).

III. CRUDE PROTEIN

With each progressive advance in stage of maturity, the CP content decreases (22). Overall CP levels are lower in regrowth than in the initial harvest (22, 27). The percent CP of some cultivars of sorghum and pearlmillet harvested four times/year was 2.6% higher than that of the same cultivars harvested three times/year (4). At the first cutting, the average protein levels were higher when cut at the 15.2 cm stubble height than in similar herbage cut at 7.6 cm; in later cuts, protein levels of comparable herbage cut at 7.6 cm were higher than in herbage cut at 15.2 cm (4). Wedin (1970) obtained essentially equal yields of CP with two or three harvests. Two harvests/year produced slightly higher yields than three harvests/year; however, three

harvests/year had better quality in terms of CP and IVDMD, 3.6% and 2.3% higher, respectively (28).

Burger et al. (4) and Srivastava (23) have found that increasing cutting frequency increases CP. This was probably due to the shorter height at which the herbage was cut (7). Decreasing cutting frequency has been observed to decrease CP percent but increase CP yields (28).

IV. LEAVES AND LEAF AREA

Tomeu (26) claimed that leaf percentage increased from 24.3% in the first cut to 42.1% in the sixth cut. Leaf area, however, decreased with each succeeding cut.

V. TILLERING

Even though tillering is vital for regrowth in forage sorghums, little work has been published on tillering behavior. Once the initial meristem has been removed all regrowth must ensue from lateral meristems. In several studies on grain sorghum (Sorghum bicolor (L.) Moench) in Hawaii, Escalada and Plucknett (8, 9, 10) observed that early tillers originated from basal or epigeal nodes adjacent to elongated internodes. Tillers that appeared later originated from nodes adjacent to elongated internodes. The first tillers arose at least a month after seed germination. In regrowth, the time interval for tiller appearance was longer with number of regrowths; tillers appeared after one week in the first and second regrowths, but later as cuts continued. The appearance of tillers in stands with a high population of stems was delayed more than

in stands of low population, and generally, the first two tillers that arose died; however, later tillers were productive (8).

Escalada and Plucknett (10) later found that, as the rate of N applied increased, tillering capacity increased for grain sorghum. Eight centimeters about the ground seemed to be the best height of cutting for attaining balance between uniform regrowth and sufficient reserves for tiller production during summer (10).

VI. IN VITRO DRY MATTER DIGESTIBILITY

Variations of IVDMD among cultivars seem to be inversely related to tannin and lignin content. High levels of tannin and lignin contribute to relatively low digestibilities (20, 14). Lignin content increases with aging; cellulose and hemicellulose content in forage millets follow a similar trend as lignin content, and may also contribute to lower IVDMD as maturity approaches (3). An exception, in forage sorghum, is that greater digestibilities have been observed in frosted material, possibly due to cell wall breakdown (11).

Stem IVDMD was consistently lower than leaf IVDMD by a few percentage points (11). Forage sorghum leaves harvested at early bloom were only slightly lower in IVDMD than when harvested in the vegetative state; however, stem and head materials were of lower digestibility than leaf blades (11).

In the sorghum-sudangrass cultivar, Sudax SX-11, IVDMD decreases as the plant increases in height; it also decreases as percent leaves decrease or as percent stems increase (7). In the literature, much has

been discussed about harvesting frequency and quality (4, 7, 11, 14, 16, 21, 22, 26). It appears that forage harvested more frequently or forage harvested at less mature stages was higher in digestibility than more mature stages, but yield of IVDMD was maximized by fewer harvests (28).

Pearlmillet IVDMD and leafiness (percentage of plant DM contributed by the leaves) decrease as the plant ages (14, 17). Leafiness is not significantly related to leaf digestibility at any age (14). In some cultivars stem and leaf digestibilities are not directly related (14).

CHAPTER II

MATERIALS AND METHODS

Field experiments were conducted in 1976 and 1977 to study management effects on summer annual grasses. The 1976 experiment had 15 management treatments; the one in 1977 had fewer treatments.

I. 1976 EXPERIMENT

Four summer annual grass cultivars (Table I) were planted
26 April 1976 on a Sequatchie fine sandy loam (fine-loamy, siliceous,
thermic Humic Hapludults) at the University of Tennessee Plant Science
Farm, Knoxville. Previously the experimental area had received 68 kg
P/ha and 128 kg K/ha broadcast and disked in before planting. The
four cultivars were seeded in rows oriented north-south with a Planet
Jr. garden drill planter. A seeding rate of 28 kg/ha was used for
the three sorghum-sudangrass hybrids and a 20 kg/ha rate for the pearlmillet.

Each experimental unit (plot) measured 6.10 m x 1.38 m and consisted of three rows .46 m apart. An area 1.83 m wide was maintained free of vegetation on all sides of the plots by disking. The area between rows was hand-hoed.

Two weeks after emergence 54 kg N/ha were sidedressed as $\mathrm{NH_4NO_3}$. Later, an application of 160 kg N/ha was sidedressed on 5 August.

TABLE I
MANAGEMENTS AND CULTIVARS USED

HEIGHT OR STAGE OF GROWTH AT HARVEST (Main plot treatments*)	CULTIVAR (Split plot treatments)
1 - '50-15' 2 - '90-15' 3 - 'PB-15'	1 - Chowmaker 235 (Ring Around Products) 2 - Sweet Sioux III (Acco Seed Co.)
4 - 'B-8' 5 - 'EB-8'	3 - FS-531 (Acco Seed Co.)
6 - '50-15, 90-15' 7 - '50-15, 90-15, 50-15, 50-15, 75-15' 8 - '90-15, PB-15' 9 - '50-15, PB-15, 50-15, 75-15' 10 - '50-15, B-8' 11 - '50-15, B-8, 75-15' 12 - '50-15, 50-15, B-8, 75-15' 13 - '50-15, EB-8, 75-15' 14 - '50-15, EB-8, PB-15' 15 - '50-15, EB-8, B-8'	4 - Millhy 99 (Ring Around Products)
16 - '90-8' 17 - '90-8, PB-15' 18 - '90-8, B-8' 19 - '90-15, B-8'	

^{*}The numbers refer to height at harvest (50 or 90 cm) or to stubble height (8 or 15 cm). Maturity stages at harvest were PB (pre-boot stage just before boot stage), B (boot stage), or EB (early bloom, 10% in bloom). The last management listed within quotes was continued until frost.

A split-plot factorial treatment arrangement in a randomized complete block with four replications was employed. In 1976, the main plot treatments consisted of the first 15 managements in Table I designed to simulate grazing, greenchop, hay, or silage harvests, used singly or in various combinations. Split-plot treatments were the four cultivars.

A garden tractor fitted with a sickle-bar mower was used to cut guard rows at the 15-cm height when required. If an 8-cm stubble height was desired, the plot was harvested with hand sickles using a guide bar to insure proper height.

II. 1977 EXPERIMENT

The same cultivars as in 1976 were planted on 28 April 1977 on the field used the previous year.

Prior to planting, any plant residues remaining over the winter were burned and 49 kg P/ha and 53 kg K/ha were disked into the soil. On 27 May 292 kg N/ha as $\mathrm{NH_4NO_3}$ were sidedressed. This application was followed by 47 kg N/ha on 9 August.

Four rows were planted .46 m apart, with 3.5 m allowed between adjacent plots and 9.1 m alleyways at each end. The plot size was $9.1 \text{ m} \times 1.84 \text{ m}$. Guard rows were planted around the entire field experiment.

The number of split plot treatments (cultivars) allocated to each main treatment differed from 1976. Main treatments used were managements '90-15', 'B-8', 'EB-8', '90-15, PB-15', and the last four managements listed in Table I for Chowmaker and Sweet Sioux. FS-531 and Millhy were

subjected to managements 'EB-8' and '90-15, B-8', and 'EB-8' and '90-15' respectively. The experimental design had a split-plot factorial treatment set, arranged in a randomized complete block with four replications of the main treatments.

III. DATA COLLECTED

In both years two samples were taken at each harvest from each plot. A 2.13 m x .46 m sample was cut at the scheduled stubble height from a center row, dried and weighed for dry matter yield. A .30 m x .46 m sample, cut at ground level, was separated in the field into leaves about the height where the cut was scheduled for each management, leaves below the cut, and stems. These samples were placed in ice in the field, then frozen and stored for later processing. In the laboratory, the distance of primary and lateral meristems from the ground surface was measured. When lateral meristems initiated growth above the ground level, total height above the ground was recorded. After meristem heights were recorded, the culms were separated into portions which would have occurred above and below the scheduled stubble height. Leaf areas (blades excluding sheaths) were measured on an Automatic Area Meter (Hayashi Denko Co. Ltd. Type AAM-5) for green leaves above and below cut. Weights to the nearest 0.1 g were obtained for each of the four component parts after drying in a forced-draft oven at 65 C.

In vitro dry matter digestibility (IVDMD) was determined for 134 samples selected from samples harvested in 1976. The design was

a simple lattice with two replications over time (5). Another IVDMD digestion was run on all above cut samples harvested in 1977. The design was a simple lattice with three replications over time (5). A modified Tilley and Terry (25) in vitro technique was used. It differed from the original method in that solka floc was used for standards and that abestos-matted filter crucibles were used to collect the residue. A fistulated steer, used as the source of rumen fluid, was fed alfalfa (Medicago sativa L.) hay.

The IVDMD values were adjusted for variability among blocks and replications using the least squares approach and the GLM procedure in SAS76 (1). Duncan's Multiple Range test was performed using the Duncan procedure from SAS76 (1).

Percent total N in plant tissue was determined on a dry weight basis. All above cut portions, leaves and stems, of the .30 x .46 m samples for a treatment at each harvest was composited, then analyzed for total N; the below cut portions were composited in similar fashion and also analysed for N. A 0.2 g portion of each composite sample was digested in concentrated sulfuric acid and in 35% hydrogen peroxide. The resultant extract was analyzed with a Technicon Autoanalyzer using the phenolhypochlorite color reaction described by Thomas et al. (24).

IV. PRESENTATION OF DATA

The nature of the data obtained did not permit analysis of variance procedures. Since there were many harvests at different times during each season, most data are presented graphically to describe

the changes that occurred over time. Total seasonal dry matter yields were calculated and are presented to place the several treatments in proper perspective relative to each other. However, since the range of productivity was very large and number of cuts extremely varied, no combined statistical analysis was attempted. Instead, data are presented graphically to describe the changes over time, at each harvest, in DM yield, CP and IVDMD.

The plant characteristics were determined from total separation of plants harvested from small .30 x .46 m areas. The yields/ha of the 2.13 m x .46 m samples and of .30 m x .46 m samples were compared to determine if the .30 m x .46 m samples were a good estimate of the larger plots in both years. The R^2 values were .86 and .80 for 1976 and 1977, respectively, indicating that the smaller samples were indeed a good estimate of the larger plots.

To calculate weighted N percent and weighted IVDMD, N percent and IVDMD were separated into those from early season harvests (before 1 August) and those from late season harvests (after and including 1 August). The percent N and IVDMD were weighted for early and for late season DM production.

A total of 671 samples was analyzed for meristem heights, and individual data recorded for each culm. Skewness and kurtosis were determined for each sample to determine the extent to which these data approached normality in their distribution.

Precipitation and temperature were recorded daily at a climatological station about 200 m from the plots. Precipitation was summed for the season (cumulative precipitation) beginning at planting time and summed for periods of regrowth (regrowth precipitation). Period of regrowth included the time from the day of harvest until the day before the next harvest. Heat degree days were also summed for the season (cumulative degree days) and periods of regrowth (regrowth degree days) in the same manner (base temperature 15 C, maximum allowed 35 C).

The independent variables used in the predictive models are listed in the appendix. The dependent variables were yield per harvest, regrowth/day, total N percent, and IVDMD.

All data for all cultivars were entered into a discriminant analysis, and the results clearly indicated that the cultivars each belonged to a different population. Therefore, all subsequent analyses were conducted for each cultivar separately. Secondly, for each dependent variable, all independent variables were included in a factor analysis. When loading weights were similar for two or more independent variables, only one was kept. The selection of independent variables was made on the basis of ease and economy of data collection. After the selection of variables from the factor analysis results, the remaining independent variables were ranked from the "easiest" to obtain or the "cheapest" to measure to the more "difficult" or more expensive. The final ranking used was: number of days since March 1, number of days during regrowth, average plant height, cumulative precipitation, rainfall during regrowth periods, cumulative degree days, degree days during regrowth, culm population of previous cut/m², culm population/m²,

L.A.I. of the stubble, L.A.I. of total plant from previous cut, L.A.I. of total plant, stubble yield, leaf percent of harvest material, N content of stubble, in that order.

Subsequently, a predictive model was fitted to all observed data for each cultivar by least squares techniques. At first, those independent variables for which significant ($P \le .10$) partial regression coefficient estimates were obtained in either sequential (Type I) or partial (Type III) sums of squares were retained. When two similar independent variables were retained (e.g., cumulative precipitation and precipitation since previous harvest) the model was attempted with only one of the two also, and both variables were included in the final model only if the exclusion of one appreciably decreased the coefficient of determination ($P \ge .05$). The predictive models reported are those which contain only independent variables for which the partial regression coefficient estimates were significant ($P \le .10$), and which had the fewest and the "cheapest" or "easiest" variables, and still accounted for the largest attainable coefficients of determination.

CHAPTER III

RESULTS AND DISCUSSION

I. TOTAL DRY MATTER YIELDS

The total seasonal DM yields for each cultivar each year for each management treatment are presented in Table II. They ranged between 5,100 and 32,000 kg/ha. Differences were due not only to years and managements, but also to cultivars.

In general, the managements where plants were allowed to reach the later stages of growth produced more than those cut in the more vegetative stages. In the vegetative stages, plants cut at preboot produced more than those cut at a 90-cm height, and these yielded more than plants cut at 50 cm. This is in agreement with the results of many others (2, 4, 28).

Chowmaker (also known as Super Chow-Maker 235) yields were largest in 1976 from the two managements cut each time plants reached the B or EB stages (24,000 kg/ha) and smallest from the plants cut at 50 cm (5,800 kg/ha). The 1976 yields of the plants managed in different ways were ranked in the following manner from greatest to least:

 $^{\dagger}EB-8^{\dagger} = ^{\dagger}B-8^{\dagger}$

'50-15, EB-8, B-8'

'50-15, EB-8, PB-15'

50-15, EB-8, 75-15' = 50-15, B-8'

'50-15, B-8, 75-15' = '90-15, PB-15'

TABLE II

TOTAL SEASON YIELDS, AND NITROGEN AND IN VITRO DRY MATTER DIGESTIBLE (IVDMD) CONTENTS OF FOUR SUMMER ANNUAL GRASSES SUBJECTED TO DIFFERENT MANAGEMENTS IN EARLY AND LATE SUMMER, 1976-1977

		Season	Weigh	Weighted N	Weight	Weighted IVDMD
Year	Cultivar	Yield Y	Before August 1	1 After August 1	Before August 1	After August 1
		kg/ha	1 1 1	1 1 1 1 1 1	%	1 1 1 1 1 1 .
MGT 1:	MGT 1: 50-CM GROWTH CUT	TO 15-CM STUBBLE	STUBBLE			
1976	Chowmaker 235	5830	2.40	3.40	79.0	80.2
	FS-531	5140	2.33	3,13	81.1	79.1
	Millhy 99	7370	2.15	2.98	80.2	81.7
	Sweet Stoux III	. 2777	2.25	3.15	79.5	78.3
MGT 2:	90-см скомтн сит	TO 15-CM	TO 15-CM STUBBLE			
1976	Chowmaker 235	10300	2.04	2.71	77.1	76.8
	FS-531	0696	2.01	2.52	74.8	75.9
	Millhy 99	10010	1.79	2.28	79.3	77.4
	Sweet Sioux III	11770	2.22	2.31	79.9	76.2
MGT 3:	MGT 3: PRE-BOOT CUT TO 1	5-CM STUBBLE	BBLE			
1976	Chowmaker 235	14900	1.43	1.62		
	FS-531	15715	1.05	2.00		
	Millhy 99	10165	1.70	2.65		
	Sweet Stoux III	17310	1.43	1.50		

TABLE II (Continued)

		Season	Weighted N	N P	Weighted IVDMD	d IVDMD
Year	Cultivar	Y1eld	Before August 1	After August 1	Before August 1	After August 1
MGT 4:	BOOT CUT TO 8-CM	kg/ha M STUBBLE	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1755 a 1754 A	1 1 1 58	1 1 1 1 1
1976	Chowmaker 235 FS-531 Millhy 99 Sweet Sioux III	24150 29830 11110 1 21780	0.63 1.08 1.11 1.28	1.48 1.45 2.38 1.57	61.2 64.8 72.5 71.4	64.7 67.6 79.1 71.8
MGT 5:	EARLY BLOOM CUT TO 8-CM STUBBLE	TO 8-CM	STUBBLE			
1976	Chowmaker 235 FS-531* Millhy 99 Sweet Sloux III	24180 26755 13180 1 24835	0.53 0.74 1.22 0.65	1.13 2.09 2.30 1.13	62.6 60.2 70.2 69.3	75.1 64.8
MGT 6:	50 CM-GROWTH CUT	л то 15-см	STUBBLE ONCE,	THEN 90-CM CUT TO 15	TO 15 CM	
1976	Chowmaker 235 1 FS-531 1 Millhy 99 Sweet Sioux III 1	10085 10515 9730 1 10730	2.52 1.91 1.96 2.39	2.49 2.37 2.68 2.21	76.7 78.1 80.1 78.2	76.3 77.6 75.4 77.7
MGT 7:	50-CM GROWTH CUT TO 15-CM ST 15 CM, TWICE, THEN 75 CM TO	[7]	TUBBLE ONCE,	THEN 90 CM TO 15	15 CM ONCE, THEN 50	CM TO
1976	Chowmaker 235 FS-531 Millhy 99 Sweet Sioux III	8050 8200 8400 I 9200	2.39 1.71 2.03 2.38	2.81 2.77 2.54 2.73		

TABLE II (Continued)

		Season		Weighted	N		ed IVDMD
Year	Cultivar	Yield	Before	August 1	After August 1	196	1 After August
MGT 8:	kg/ha 90-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	kg/ha T0 15-	CM STUB	BLE ONCE,	THEN PRE-BOOT CUT TO 15 CM	CUT TO 15 CM	
1976	Chowmaker 235	16860		1.18	1.58	68.5	71.2
		14975		1.94	1.53	74.7	66.7
	Millhy 99	8940		1.73	2.53	78.2	78.1
	ux III	16680		1,30	1.83	73.2	73.2
MGT 9:	50_CM GROWTH CUT TO 15_CM EACH ONCE, THEN 75_CM CUT	TO 15-CM 75-CM CUT		STUBBLE, PRE-BOOT TO 15 CM	BOOT CUT TO 15 CM,	CM, 50-CM CUT TO 15	15 CM,
1976	Chowmaker 235	11510		1.59	2.56		
	FS-531	16440		96.0	3.04		
	Millhy 99	9985		1.71	2.34		
	Sweet Sioux III	12080		1.89	2.38		
MGT 10:	MGT 10: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	TO 15-	CM STUB	BLE ONCE,	THEN BOOT CUT TO 8 CM	TO 8 CM	
1976	Chowmaker 235	18685		1.03	1.25		
		30440		2.39	1.42		
	Miliny 99 Sweet Sioux III	9130		1.92	2.13		
MGT 11:	MGT 11: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	TO 15-	CM STUE	BLE ONCE,	BOOT CUT TO 8 CM ONCE,		THEN 75 CM CUT TO 15 CM
1976	Chowmaker 235	16485		1.02	2.44		
	FS-531	26275		2.58	1.48		
	Millhy 99	10400		1.96	1.84		
	Sweet Sloux III	14220		L.43	07.7		

TABLE II (Continued)

		Season	Weighted N	N F	Weigl	Weighted IVDMD
Year	Cultivar		fore Augus	After August 1	Before Augus	t 1 After August 1
MGT 12:	50-СМ СКОМТН	cur ro 15-cm	A STUBBLE TWICE	E, BOOT CUT TO 8	CM ONCE, THEN 75	MGT 12: 50-CM GROWTH CUT TO 15-CM STUBBLE TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM
1976	Chowmaker	14840	2.39	1.26	81.0	65.4
	Millhy 99	9100	1.87	2.22	79.5	78.7
	Sweet Sioux III	1 13265	1.53	2,38	72.2	77.4
MGT 13:	MGT 13: 50-CM GROWTH CUT 75 CM CUT TO 15	0	STUBBLE ONCE,	TO 15-CM STUBBLE ONCE, EARLY BLOOM CUT TO 8 CM ONCE,	TO 8 CM ONCE,	THEN
1976	Chowmaker 235	18480	1.33	2.78		
	FS-531 Millhy 99	20325	2.39	2.02		
	Sweet Sioux III	1 16020	1.11	2.09		
MGT 14:	MGT 14: 50-CM GROWTH CUT TO 15 CM		STUBBLE ONCE,	EARLY BLOOM CUT	TO 8 CM ONCE,	TO 15-CM STUBBLE ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN PRE-BOOT CUT
1976	Chowmaker 235	20280	1.33	1.60	60.09	65.5
	FS-531	22020	2,39	1,38	82.9	66.2
	Millhy 99	0926	1.26	2.32	6.97	62.8
	Sweet Stoux III	1 17315	1.11	1.87	68.1	74.0

TABLE II (Continued)

		Season	Weighted N	N	Weighte	Weighted IVDMD
Year	Cultivar	Yield	Before August 1	After August 1	Before August 1	After August 1
MGT 15:	MGT 15: 50-CM GROWTH CUT		TO 15-CM STUBBLE ONCE, EARLY BLOOM CUT	EARLY BLOOM CUT	TO 8 CM ONCE, THEN BOOT CUT	EN BOOT CUT
	TO 8 CM					
1976	Chowmaker 235	22645	1.34	1.77	61.1	67.4
	FS-531	22425	2.17	1.28	82.9	66.4
	Millhy 99	11055	1.17	2,32	56.5	74.7
	Sweet Sloux III	17660	1.11	1.83	68.0	0.79
MGT 2:	90-СМ СКОМТН СОТ		TO 15-CM STUBBLE			
1977	Chowmaker 235	10575	2.55	1.90	76.3	6.69
	Millhy 99	11680	2.92	1.47	72.1	8.69
	Sweet Sioux III	9395	2.53	2.20	75.6	70.8
MGT 4:	BOOT CUT TO 8-CM	M STUBBLE	ŭ			
1977	Chowmaker 235		1.45	1.19	59.1	68.0
	Sweet Sloux III	18950	2.33	1.36	63.8	65.8
MGT 5:	EARLY BLOOM CUT	TO 8-CM	STUBBLE			
1977	Chowmaker 235	25140	1.09	1.28	67.5	49.8
	FS-531	32025	0.83	0.99	52.4	6.09
	Millhy 99	2797	2.15	1.77	0.69	0.99
	Sweet Sioux III	25370	2.50	1.26	61.6	64.9

TABLE II (Continued)

*First harvest which occurred after August 1 was included in the early season.

** The second harvest was included in the late season.

```
'PB-15' = '50-15, 50-15, B-8, 75-15'
'50-15, PB-15, 50-15, 75-15'
'50-15, 90-15' = '90-15'
'50-15, 90-15, 50-15, 50-15, 75-15'
'50-15'.
```

In 1977, a similar ranking was observed for the managements that were studied that year:

'EB-8'
'B-8'
'90-15, B-8'
'90-8, B-8'
'90-15, PB-15'
'90-8, PB-15'
'90-15' = '90-8'

Sweet Sioux yields followed a trend similar to that observed for Chowmaker, with the largest yields obtained from plants cut at EB and the smallest from plants cut at 50 cm. Yields in 1976 of the plants managed in different ways were ranked as follows:

'EB-8'
'B-8'
'50-15, EB-8, B-8' = '50-15, EB-8, PB-15' = '50-15, B-8' =
'PB-15' = '90-15, PB-15'
'50-15, EB-8, 75-15' = '90-15, PB-15'
'50-15, B-8, 75-15'
'50-15, 50-15, B-8, 75-15'

```
'50-15, PB-15, 50-15, 75-15' = '90-15'
'50-15, 90-15'
'50-15, 90-15, 50-15, 50-15, 75-15'
'50-15'.
```

In 1977, yields were smaller than in 1976 for all Sweet Sioux plants with the same managements in both years, except for those cut at 'EB-8' which yielded the same. When the yields from managements were ranked, they occurred as follows:

'EB-8'

'B-8' = '90-8, B-8'

('90-15, B-8' = '90-8, B-8') = '90-8, PB-15'

'90-15, PB-15'

'90-8' = '90-15'

FS-531 grown in 1976 was unusual, since plants cut at the 'B-8' or '50-15 then B-8' yielded about 3,000 kg/ha more than those cut according to the 'Eb-8' management. The yields of the different plant managements were ranked as follows:

```
'B-8' = '50-15, B-8'

'EB-8' = '50-15, B-8, 75-15'

'50-15, EB-8, B-8' = '50-15, EB-8, PB-15'

'50-15, EB-8, 75-15'

'50-15, 50-15, B-8, 75-15'

'50-15, PB-15, 50-15, 75-15 = 'PB-15'

'90-15' = '50-15, 90-15'

'50-15' = '50-15, 90-15, 50-15, 50-15, 75-15'.
```

In 1977, FS-531 plants from the 'EB-8' management yielded about 5,000 kg/ha more than in 1976. This yield (32,000 kg/ha) was the highest that year. The other management, '90-15, B-8', yielded about half of the yield measured in the 'EB-8' management.

The pearlmillet Millhy had a smaller range in yields than the other cultivars. The largest yield (13,200 kg) resulted from plants allowed to reach the EB stage and cut to 8-cm stubble. The smallest yields were obtained from management '50-15' or '50-15, 90-15, 50-15, 50-15, 75-15'. The yields from the other managements ranged from 8,900 to 11,100 kg/ha and fell into two main groups, 8,900-9,800 kg/ha and 10,000-11,100 kg/ha. Two of the managements used in 1976 were repeated in 1977. Management '90-15' had a larger yield in 1977 than the previous year, and the same yield was observed both years for plants cut at 'EB-8'.

In general, where there were fewer harvests, the greater were the yields. Plants allowed to grow taller or to more mature stages yielded more per harvest and season. An exception was FS-531 in 1976, which yielded more in the 'B-8' or '50-15, B-8' managements than when subjected to the 'EB-8' management.

FS-531 generally yielded most in managements with B or EB stages of growth. The exception was management '50-15, EB-8, B-8', which resulted in the largest yields for both FS-531 and Chowmaker. Millhy was generally the smallest yielding; however, in managements cut at 90 cm or 50 cm, yearly total yields were the same for all cultivars or differed at most by 2,600 kg/ha in management '50-15'. Chowmaker total yields were greater than those of Sweet Sioux in management 'B-8'

in 1976 and 1977, or when plants were harvested at 50 cm prior to the B or EB cuts in 1976.

In 1977, Chowmaker plants yielded more than Sweet Sioux plants when a PB or B harvest preceded by a 90-cm harvest was cut to a 15-cm stubble. However, Sweet Sioux yielded more than Chowmaker when the PB or B harvest was preceded by a 90-cm harvest cut to a 8-cm stubble, or in managements 'PB-15' or '50-15, 90-15, 50-15, 50-15, 75-15' in 1976. The stubble height of a single harvest produced different results in the two cultivars. Chowmaker yielded more per season when cut at 90 cm down to a 15-cm stubble, rather than at 8 cm, when this was followed by PB or B cut; however, Sweet Sioux yielded more per season when the 8-cm stubble height was used instead of 15 cm for the 90-cm harvest. The yields from the other managements were not different for these two cultivars.

II. SEASONAL DISTRIBUTION OF DRY MATTER YIELDS

Both cultivars and managements had considerable effect on the distribution of DM production during the season (Figures I and II). In 1976, the B or EB harvests for Chowmaker, Sweet Sioux and Millhy occurred on the same day within a management, regardless of whether or not a 50-15 cut had been made. This harvest day was the same because the plants had reached the pre-determined stage of growth at that time. However, when a 50-15 cut had preceded a B or EB cut, the yields at these more mature harvest stages were decreased. Sometimes the EB harvest yields were decreased by as much as half when Sweet Sioux had been cut to 50 cm previous to the EB harvest (management '50-15, EB-8,

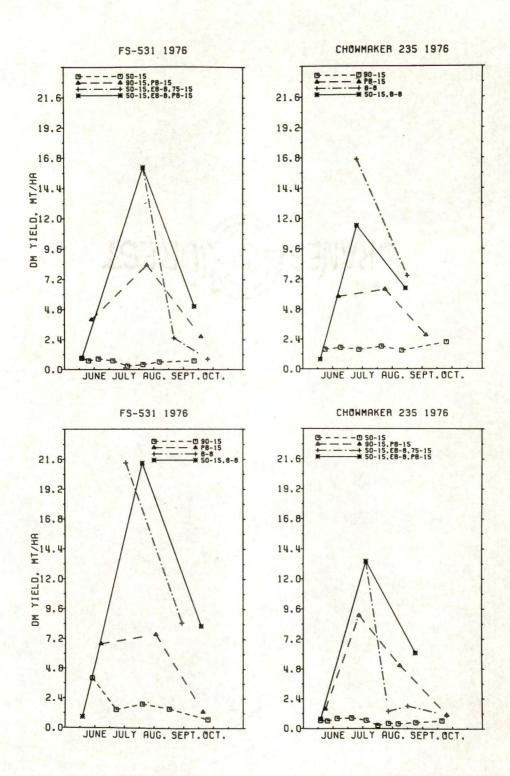


FIGURE I. SEASONAL DISTRIBUTION OF DRY MATTER PRODUCTION FOR MANAGEMENTS HARVESTED IN VEGETATIVE AND BOOT STAGES OF GROWTH, AND COMBINATIONS OF THE VEGETATIVE, BOOT, AND EARLY BLOOM STAGES FOR CHOWMAKER AND FS-531, 1976.

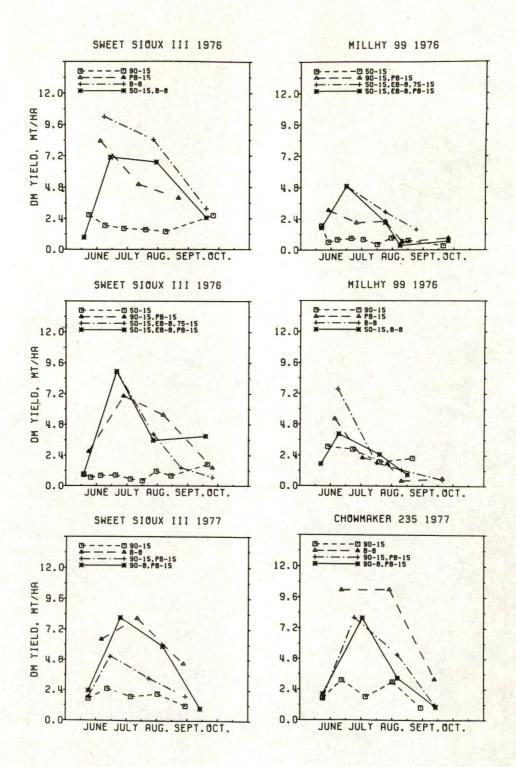


FIGURE II. SEASONAL DISTRIBUTION OF DRY MATTER PRODUCTION FOR MANAGEMENTS HARVESTED IN VEGETATIVE AND BOOT STAGES AND COMBINATIONS OF THE VEGETATIVE, BOOT AND EARLY BLOOM STAGES FOR SWEET SIOUX AND MILLHY IN 1976, AND SWEET SIOUX AND CHOWMAKER IN 1977.

75-15'), as compared to the first EB harvest in management 'EB-8' (Figure II).

FS-531 did not decrease in yield when the B or PB harvest was preceded by a 50-15 cut, but harvest was delayed. When an EB cut was preceded by a 50-15 cut, yields were decreased and harvest delayed.

A 90-15 cut before a PB cut delayed harvest for all cultivars, increased the yield of FS-531 and decreased the yields of the other cultivars.

The PB harvests of Sweet Sioux were delayed by a preceding 90-8 cut (management '90-8, PB-15', Figure II, 1977) but the plants exposed to that management yielded more than those allowed to reach the PB following a 90-15 cut (management '90-15, PB-15'). In the same two managements, Chowmaker yielded about the same or slightly more when the 90-15 cut preceded the PB in management '90-15, PB-15'. The second or PB harvest was the only one delayed. Results from managements '90-8, B-8' and '90-15, B-8' exhibited the same trends for both Sweet Sioux and Chowmaker in the boot stage.

Managements '50-15' and '90-15' produced forage uniformly over the entire season. Managements which had a 90-cm cut before the PB, B or EB resulted in delayed harvests for all cultivars. The PB, B or EB harvests of FS-531 also were delayed by a previous 50-cm harvest. In many cases, delayed harvests can be advantageous, since greater production later in the year may render hay making more feasible than earlier in the season because of less rainfall (Figure III).

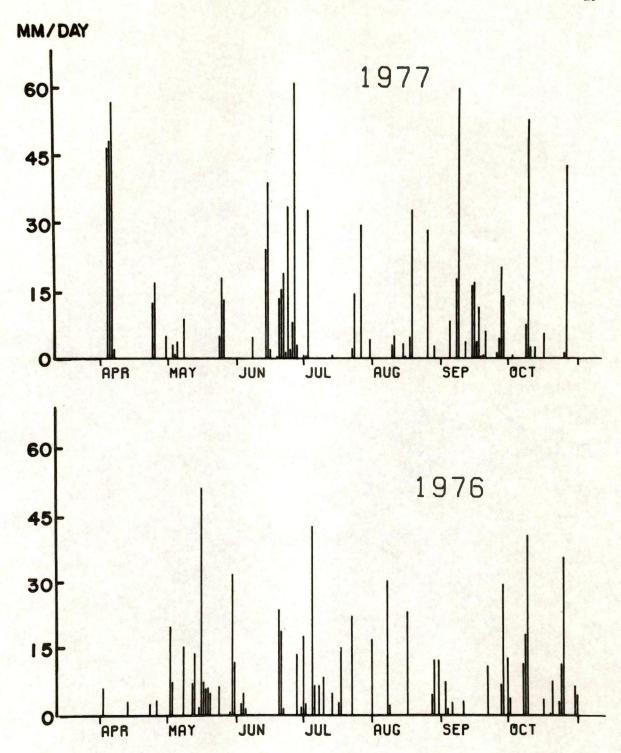


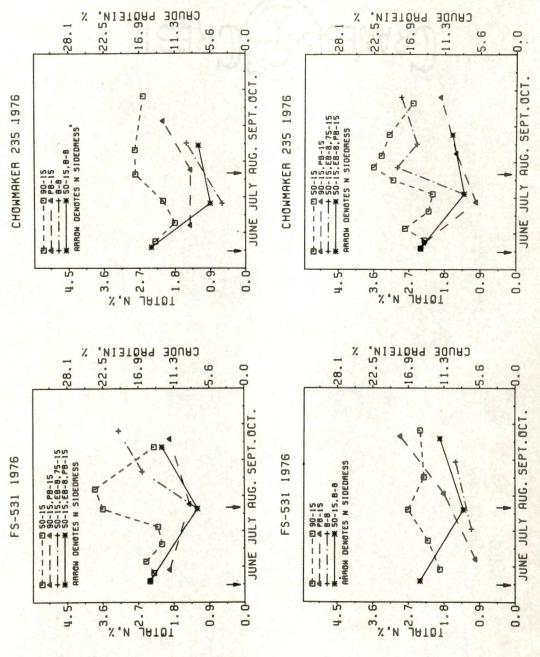
FIGURE III. DAILY PRECIPITATION DURING THE SUMMER ANNUAL GRASS GROWING SEASONS, 1976-1977.

TREASON TO HER HAND

III. TOTAL NITROGEN CONTENT

Nitrogen content of harvested material was greatest for those managements harvested more frequently and at more vegetative stages of growth (Figures IV and V). The first N fertilizer applications in 1976 (54 kg N/ha) resulted in forage containing about 1.1 to 2.6% N at the beginning of the season if harvested at 50 or 90 cm or PB. The B and EB material contained only 0.5 to 1.5% N at its first harvest. In 1977, plants contained about 3.1 to 2.1% N for the first 90 cm harvest following the N fertilizer application (292 kg N/ha), while the B and EB material contained from 2.5 to 0.8% N. The higher content in 1977 was a result of the higher rate of N applied in early summer. Sweet Sioux plants cut at B or EB had two to three times the total N content in 1977 as in 1976. No other cultivar responded to increased N/ha as did Sweet Sioux.

When Chowmaker and Sweet Sioux were harvested in management 'PB-15', the N content did not increase until the last harvest (Figures IV and V), but FS-531 and Millhy in the same management (Figures IV and V) increased or remained the same in N content in each successive harvest over the season. Millhy, however, dropped in N content at the last harvest. In management 'B-8', total N percent increased during the season for Chowmaker, FS-531, and Millhy in 1976. Sweet Sioux and Chowmaker did not vary greatly in N content over the season in 1976, and Chowmaker did not either in 1977, but Sweet Sioux decreased in N content after the first harvest in 1977.



SEASONAL TRENDS OF N CONTENT OF PLANTS HARVESTED VEGETATIVE, BOOT AND EARLY BLOOM STAGES FOR CHOWMAKER AND FS-531, IN VEGETATIVE AND BOOT STAGES OF GROWTH AND COMBINATIONS OF THE FIGURE IV.

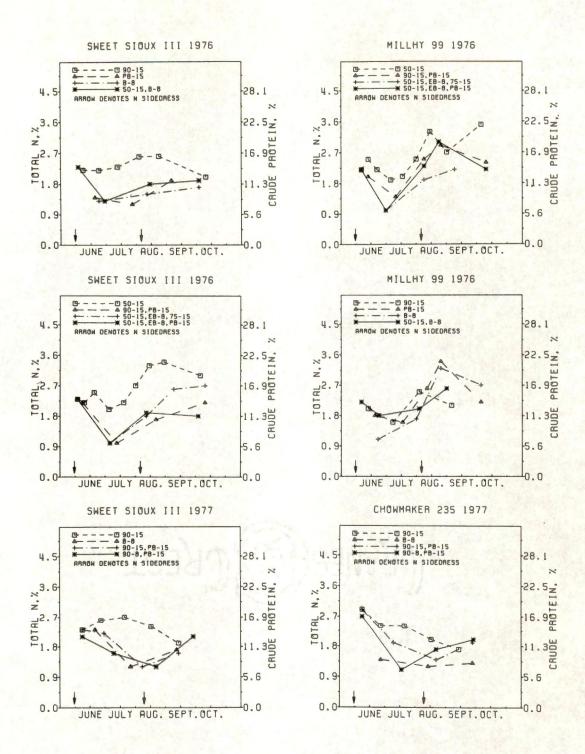


FIGURE V. SEASONAL TRENDS OF N CONTENT OF PLANTS HARVESTED IN VEGETATIVE AND BOOT STAGES OF GROWTH AND COMBINATIONS OF THE VEGETATIVE, BOOT AND EARLY BLOOM STAGES FOR SWEET SIOUX AND MILLHY IN 1976, AND SWEET SIOUX AND CHOWMAKER IN 1977.

When a management was used which removed material at a uniform and vegetative stage of growth (50 cm, 90 cm, PB), the N percent tended to remain at about the same level during the season, at least until the second N fertilization resulted in an increase. When plants were harvested at the B or EB stage, N content decreased in July and did not appear to increase until the next fertilization and after a rain.

The fluctuations in N content of plants in management '50-15' during the entire season were similar for all cultivars. Trends observed for plants subjected to '90-15', within each cultivar, were very similar to those of '50-15' plants; however, N content of '90-15' plants was lower (Table II, p. 16) and varied less than the N content of plants subjected to the '50-15' management.

IV. WEIGHTED N CONTENT

The N content of plants harvested at each cut was adjusted for the yields measured before and after 1 August to obtain a weighted N content for each half of the season (Table II, p. 16). The effect of developmental age and maturity on the total N content of plants subjected to different managements was pronounced and different for the several cultivars. Plants cut frequently in vegetative stages had between 2.4 and 1.8% N during early summer in 1976 and between 3.4 and 2.3% in late summer. When cut at the B or EB, plants ranged from 1.3 to 0.5% in early summer and from 2.4 to 1.1% in late summer.

In 1977, weighted N contents were higher for management '90-15' in early summer than in 1976, but late summer values were lower than in

1976. When plants were cut at the B or EB stages, the N percent was higher in early summer in 1977 than in 1976, and late summer values were again lower. Early summer values ranged between 2.5 and 0.8% N, and late summer values ranged from 1.8 to 1.0% N.

In 1976, a 50-15 cut preceding PB, B, and EB harvests resulted in greater weighted N percent of all cultivars above that measured from plants cut repeatedly at PB, B or EB stages only. This occurred because not only the high N content of the first cut material increased the weighted N content, but also because in some cases, the N percent of the plants cut at PB, B, and EB following the initial 50-15 harvest was higher than that measured from plants initially cut at PB, B, or EB. Thus, the early season weighted N percent was increased. Both situations occurred with the EB-managed sorghum-sudangrass hybrids; the B management of Chowmaker, FS-531 and Millhy, and the PB-managed Sweet Sioux. The 90-15 harvest preceding the PB stage cut resulted in a decrease in N percent of the plants cut at PB, compared to all plants cut continuously at PB to a 15-cm stubble except FS-531, which increased about 0.3% N.

In 1977, all the early summer weighted total N contents were higher than in 1976 for those managements that were studied both years, and the late season N percents were generally lower. Sweet Sioux had the same late summer N content in both years in managements '90-15' and 'EB-8'; Chowmaker N percent was the same in both years during late season in managements '90-15, PB-15' and 'EB-8'. The greater easly season N contents observed in 1977 were probably due to the higher rate of N fertilizer applied the second year.

A 300 kg growing steer consuming at least 8.1 kg roughage/day needs 10.0% CP (1.6% N) and a mimimum of 70% TDN (15). The forage harvested in 1976 which met these minimum requirements were obtained from the '50-15', '50-15, 90-15', '50-15, 90-15', 50-15, 50-15, 75-15' managements for all cultivars; from management '50-15, PB-15, 50-15, 75-15' for Sweet Sioux and Chowmaker; and from all the PB or B harvests preceded by 50 or 90 cm cuts for Millhy and 'PB-15' for Millhy (Table II, p. 16).

In 1977, managements '90-15' and '90-8' for the two sorghumsudangrass hybrids resulted in plants which met the above minimum requirements. Other managements which had plants that appeared to have met these requirements but may have had low late season weighted IVDMD were 'EB-8' for Millhy, '90-8, B-8' for Sweet Sioux and '90-15, B-8' for Chowmaker.

V. IN VITRO DRY MATTER DIGESTIBILITY

In vitro DM digestibility for all samples analyzed ranged from 82.9 to 49.8% for both years (Table II, p. 16) and from 82.9 to 59.7% in 1976 (Figure VI). As expected, IVDMD of B and EB plant material was much lower than that of material harvested at younger stages of maturity. Many IVDMD values, if used as estimators of total digestible nutrients (TDN), exceeded the minimum TDN requirements for the growing steer example used earlier (15).

In 1976, managements with cuts at 50 and 90 cm resulted in the largest IVDMD values for all cultivars (Table II, p. 16), as well as

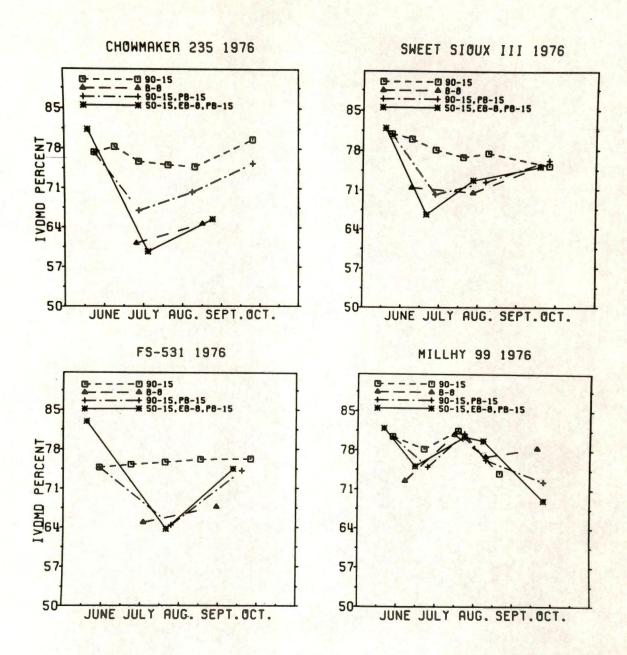


FIGURE VI. SEASONAL TRENDS IN IVDMD FOR MANAGEMENTS '90-15%, 'B-8', '90-15, PB-15', '50-15, EB-8, PB-15' FOR FOUR SUMMER ANNUAL GRASSES, 1976.

managements '90-15, PB-15' and '50-15, 50-15, B-8, 75-15' for Millhy.

Smallest in IVDMD were Chowmaker and FS-531 plants cut continuously at the B or EB growth stages, and Chowmaker plants subjected to the '50-15, EB-8, PB-15' management. Sweet Sioux and Millhy were generally higher in IVDMD than Chowmaker and FS-531 for the same managements.

In 1977, plants cut at 90 cm also had the largest IVDMD values, as well as those from the '90-15, B-8' management for Chowmaker and Sweet Sioux. Sweet Sioux and FS-531 plants had the smallest IVDMD when cut continuously at 'EB-8'. All 1977 IVDMD values were equal to or less than the IVDMD measured for the same managements in 1976, never higher.

In 1977, differences in stubble height did not result in yield differences between the '90-15' and '90-8' managements applied to Chowmaker and Sweet Sioux; there was also no difference in IVDMD between these two managements. Managements '90-8, B-8' and '90-15, B-8' also had IVDMD values which were not different from each other between managements and within cultivars. However, FS-531 plants had a smaller late season IVDMD in management '90-15, B-8' than the other cultivars. The PB plants of Chowmaker preceded by a 90-cm cut to an 8-cm stubble resulted in a higher IVDMD than the PB plants preceded by a 90-cm harvest cut to a 15-cm stubble, but this was not the case for Sweet Sioux.

The seasonal trends in 1976 IVDMD values are illustrated for four managements and four cultivars in Figure VI. The largest values were obtained from plants harvested at 50 cm for all cultivars; the smallest were from plants cut at B and EB for all cultivars, and at PB for all cultivars except Chowmaker.

The sorghum-sudangrass hybrids subjected to the '90-15' management had relatively uniform IVDMD throughout the season, and so did the Sweet Sioux plants cut at 'B-8'. The other managements usually resulted in IVDMD values which had a minimum in July. Since FS-531 matured later than the other cultivars, the smallest IVDMD for this crop occurred in August. Millhy plants had small IVDMD both in July and at the end of the season for all managements. The IVDMD of this cultivar did not seem to be affected by management, since the trend in IVDMD over time was the same for almost all managements. After the minimum was reached in July, the IVDMD of the sorghum-sudangrass hybrids tended to increase until the end of the growing season.

VI. PLANT AND MERISTEM HEIGHTS

The average heights of plants and terminal meristems of each cultivar and for each management at each harvest are illustrated in Figures VII - XI. Plants which were scheduled to be cut at 50 or 90 cm in height were in fact cut close to those heights. The height of plants cut at the PB, B and EB stages varied over the season for each cultivar and was influenced by the previous harvest. Average meristem height almost always paralleled average plant height—and at a lower level—over the growing season, except at the end of the season when average meristem heights approached average plant heights.

It is appropriate to consider here the nature and distribution of plant and meristem heights within the samples collected from the 0.30×0.46 m sampling areas (Table III). Primary culm and tiller

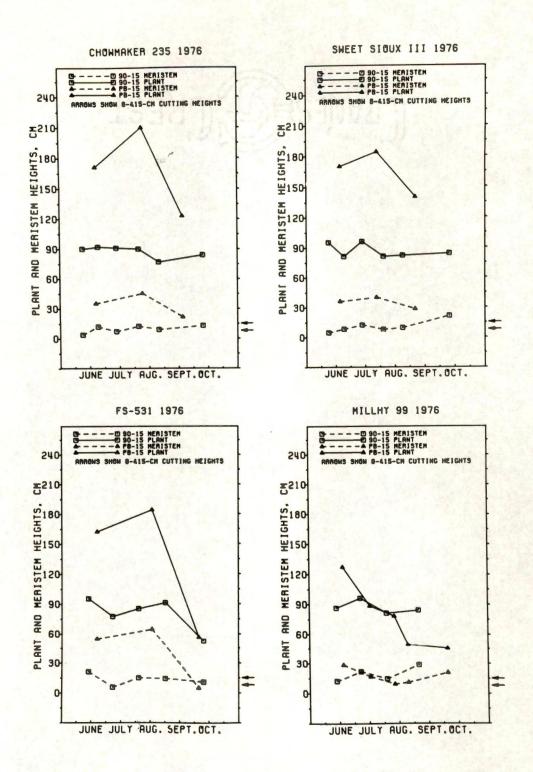


FIGURE VII. PLANT AND MERISTEM HEIGHTS OF FOUR SUMMER ANNUAL GRASSES SUBJECTED TO THE '90-15' AND 'PB-15' MANAGEMENTS, 1976.

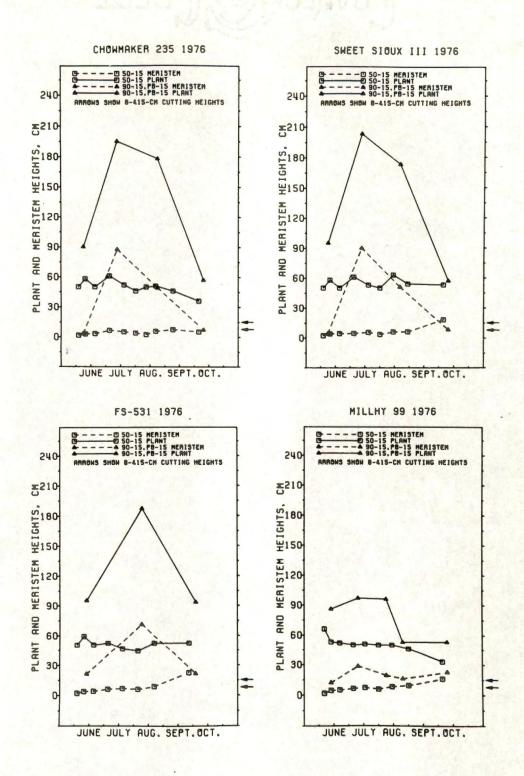


FIGURE VIII. PLANT AND MERISTEM HEIGHTS OF FOUR SUMMER ANNUAL GRASSES SUBJECTED TO THE '50-15' AND '90-15, PB-15' MANAGEMENTS, 1976.

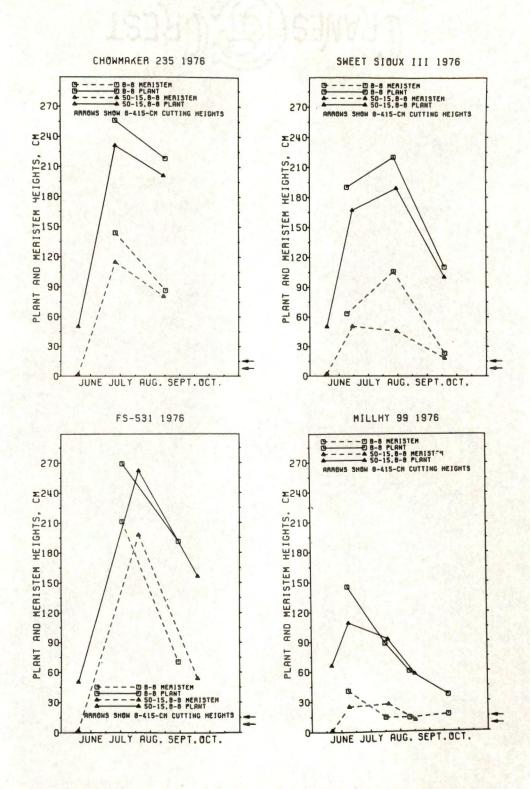


FIGURE IX. PLANT AND MERISTEM HEIGHTS OF FOUR SUMMER ANNUAL GRASSES SUBJECTED TO THE 'B-8' AND '50-15, B-8' MANAGEMENTS, 1976.

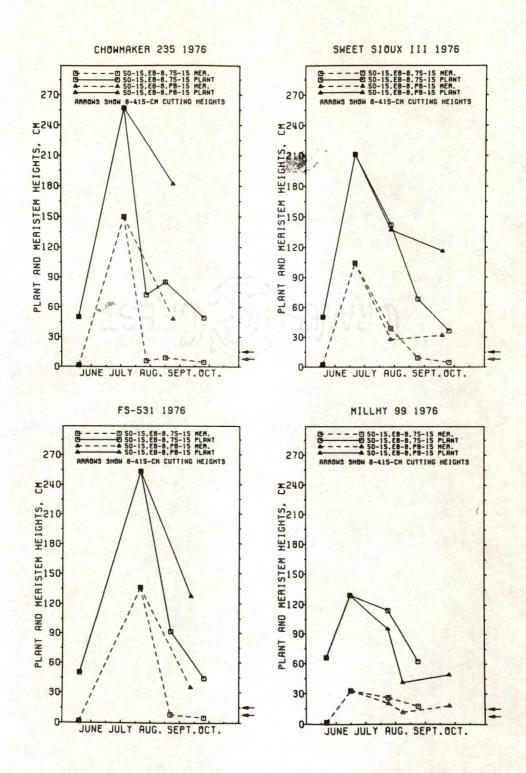


FIGURE X. PLANT AND MERISTEM HEIGHTS OF FOUR SUMMER ANNUAL GRASSES SUBJECTED TO THE '50-15, EB-8, 75-15' AND '50-15, EB-8, PB-15' MANAGEMENTS, 1976.

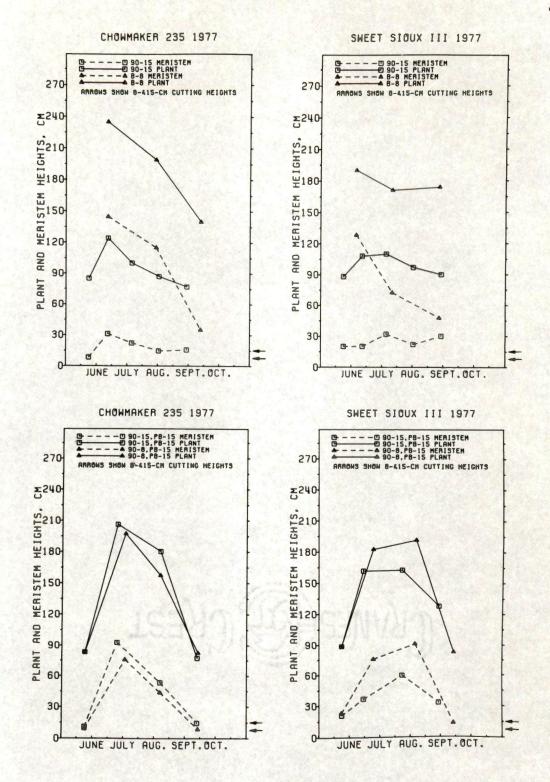


FIGURE XI. PLANT AND MERISTEM HEIGHTS OF CHOWMAKER AND SWEET SIOUX SUBJECTED TO THE '90-15' AND 'B-8' MANAGEMENTS, 1977.

TABLE III

SKEWNESS AND KURTOSIS OF DISTRIBUTIONS OF MERISTEM HEIGHTS
OF FOUR SUMMER ANNUAL GRASSES SUBJECTED TO DIFFERENT
MANAGEMENTS, 1976-1977 (671 SAMPLES)

Skewness	Percent	Kurtosis	Percent
Primary Culm and Tille	r Meristem Heig	ghts Above Ground	
-0.5 to +0.5	43.7	-0.5 to +0.5	47.2
-1.0 to +1.0	70.3	-1.0 to +1.0	66.9
-1.5 to +1.5	88.4	-1.5 to +1.5	78.1
-2.0 to +2.0	96.0	-2.0 to +2.0	84.2
0.0 to +2.0	91.2	-2.0 to +3.0	90.1
Axillary Tillers			
	Meristem Ler	ngths	
-0.5 to +0.5	26.8	-1.0 to +1.0	33.8
-1.0 to +1.0	42.9	-2.0 to +2.0	52.6
-1.5 to +1.5	67.4	-2.5 to +2.5	59.6
-2.0 to +2.0	86.4	-3.5 to +3.5	70.7
-2.0 to +2.5	95.1	-5.5 to +4.5	79.1
0.0 to +2.5	90.4	-5.5 to +5.5	86.4
. <u>н</u>	eights of Origi	in Above Ground	
-0.5 to +0.5	55.6	-1.0 to +1.0	60.2
-1.0 to +1.0	76.4	-1.5 to +1.5	72.3
-1.5 to +1.5	92.0	-2.0 to +2.0	77.2
-2.0 to +2.0	98.8	-3.0 to +3.0	87.2
0.0 to +2.0	88.1	-4.0 to +4.0	94.1

meristem heights refer to meristem heights from culms that originated at ground level. If a tiller originated as an adventitious bud above ground level, the distance of the meristem beginning from the point of origin on the stem was called the axillary tiller meristem length. The distance from the ground to the point of origin on the stem was called the height of origin above ground. Since a large proportion of the 671 samples, where both primary culm and tiller meristem heights were measured, had a skewness with an absolute value of less than 1.5 and a kurtosis with an absolute value of less than 2, it would seem that the data measured were distributed normally. However, the skewness range of 0.0 to +2.0 indicates that about 90% of the observations for the three morphological characteristics have values clustered to the left of the mean, with extreme values to the right of the mean. indicates that more heights occurred below the mean of the characteristics than above it, or that primary culm and axillary tiller origins in fact occurred mostly below the mean heights listed. The skewness values of -1.0 to +1.0, which describe a relatively normal distribution, included 70% of meristem heights and 76% of axillary origins above ground. Thus, most of these were distributed almost normally, while many axillary tiller meristem heights were skewed to one side.

Kurtosis values indicate little flattening of distribution peaks. In fact 67% of meristem heights and 60% of axillary tiller origins occurred in the kurtosis range of -1.0 to +1.0. Only 34% of axillary tiller meristems occurred in the same range. Since a majority of the skewness and kurtosis values have an absolute value of 1.5, the data can be considered normally distributed.

The height of sorghum-sudangrass plants cut at PB in management 'PB-15' (Figure VII, p. 39) rose from the first to the second harvest, and then decreased. Meristem heights changed less than plant heights, but followed the same trend. The average plant height of Millhy plants cut at PB decreased from beginning to end of the season, while there was little change in average meristem height. The PB harvest succeeding the 90-15 harvest (Figure VIII, p. 40) was the highest of the plants cut at PB for the sorghum-sudangrass hybrids, then PB plants decreased in average plant height during the rest of the season. The graph of Millhy from the second harvest onward resembled the graph for management 'PB-15' in average plant and meristem height.

Average plant height in management 'B-8' (Figure IX, p. 41) ranged from about 255 cm to 150 cm for all cultivars, then decreased for all cultivars except Sweet Sioux which had a higher plant height for the second than for the first harvest. The curve for average meristem height was not parallel to plant heights for Millhy. Average meristem height decreased after the first harvest to 15 cm.

Average plant and meristem heights for the B stage of Sweet

Sioux preceded by a 50-cm cut were lower than for plants in the B stage
of management 'B-8' (Figure IX, p. 41). Plants of FS-531 had the same
heights when cut at the B stage whether preceded by a 50-cm cut or not;
the last harvest of management '50-15, B-8' was lower in height for both
plants and meristems because of fewer days of growth. The first cut at
the B stage for Millhy in management 'B-8' was higher than the first
cut at the B stage in management '50-15, B-8', but during the rest of
the season heights at the B stage were not different.

The data shown for the first two harvests of the managements illustrated in Figure X, p. 42, coincide because the managements were different only after the second harvest. The single harvests of Chowmaker and FS-531 plants after the EB cut in management '50-15, EB-8, PB-15' were over 2.5 m in height, and Sweet Sioux plants were about 2.1 m tall. Millhy plants had the lowest average plant and meristem heights. Sweet Sioux and Millhy were harvested at 130 or 120 cm instead of 75 cm for management '50-15, EB-8, 75-15', but Chowmaker and FS-531 were harvested close to 75 cm. The curve of average meristem height again mirrored the curve of average plant height, but it was below 15 cm after the second harvest in Chowmaker and FS-531.

In 1977, management 'B-8' (Figure XI, p. 43) had one more harvest than in 1976 for Chowmaker, but the plants in managements 'B-8' and '90-15, PB-8' were similar to those in 1976. Management '90-15' plants were harvested sometimes when higher than 90 cm.

Chowmaker plants harvested at PB, when preceded by a 90-15 or 90-8 cut, were not different in average plant or meristem height, but Sweet Sioux plants were lower in average plant and meristem heights when the PB was preceded by a 90-15 harvest rather than a 90-cm cut to 8-cm stubble.

VII. PREDICTIVE MODELS

Predictive models for yield at each harvest, regrowth per day (kg/ha/day), total N percent, and IVDMD were developed for the four cultivars (Table IV). Some variables such as average plant height

TABLE IV

PREDICTIVE MODELS FOR HARVESTED YIELD, REGROWTH RATE, TOTAL N CONTENT, AND IN VITRO DRY MATTER DIGESTIBILITY OF FOUR SUMMER ANNUAL GRASSES, 1976-1977

Coefficients of Determination (its of ton (R ²)
Yield at Each Harvest, kg/ha	
Chownaker	
Chowmaker 235 =-1014.19 + 35.8749 Days regrowth + 29.9132 Ave. ht. + 263.1293 Total L.A.I0.9546 Previous stubble yield	.918
Sweet Sioux III	
Sweet Sioux III = -3201.26 + 20.7623 Clim. day + 2.2325 Days regrowth + 61.6586 Ave. ht2.8148 Cumul. precip7.4889 Regrowth deg. days -0.7824 Previous stubble yield	.921
FS-531	
FS-531 = 3023.90 -3.2147 Clim. day -37.2900 Days regrowth + 72.1384 Ave. ht133.1384 Above leaf %	.937
Millhy 99	
Millhy 99 = -2185.74 + 4.1734 Clim. day + 5.7624 Days regrowth + 30.1451 Ave. ht. + 0.7574 Regrowth deg. days + 875.8093 Previous L.A.I. below + 191.0998 Total L.A.I.	.937

TABLE IV (Continued)

Coeff	Coefficients of Determination (R ²)
Regrowth, kg/ha/day	
Chownaker 235	
Chowmaker 235 = 54.7881 - 0.2564 Clim. day -0.5020 Days regrowth + 0.6016 Ave. ht4.2228 Previous total L.A.I. +13.2400 Total L.A.I.	.863
Sweet Stoux III	
Sweet Sioux III = 27,4841 + 0,1317 Clim. day -1,2263 Days regrowth +1,7547 Ave. ht0.3638 Regrowth deg. days -0.0201 Previous stubble yield	.874
FS-531	
FS-531 = -42,4134 + 0.8550 Clim. day -2.6133 Days regrowth + 1,5621 Ave. ht0.1872 Cumul, precip.	.893
M111hy 99	
Millhy 99 = -47.4775 + 0,1368 Clim. day -0,5527 Days regrowth + 0.8936 Ave. ht0.0522 Regrowth deg. days + 75,5986 Previous L.A.I. below	.880
Total N%	
Chownaker 235	
Chowmaker 235 = 0.9724 + 0.0204 Clim, day -0.0619 Days regrowth -0.0031 Cumul. precip. + 0.0042 Regrowth precip3.0428 Previous L.A.I. below + 0.0278 Above leaf %	.830

TABLE IV (Continued)

Coe	Coefficients of 2
Sweet Sloux III	
<pre>Sweet Sioux III = 1.4004 + 0.0164 Clim. day -0.0419 Days regrowth -0.0050 Ave. ht0.0020 Cumul. precip. + 0.0090 Cumulative deg. days -0.0010 Previous live culms -1.5983 Previous L.A.I. below + 0.0851 Total L.A.I. + 0.0194 Above leaf %</pre>	.807
FS-531	
FS-531 = 0.8551 + 0.0080 Clim. day -0.0252 Days regrowth + 0.6734 % N stubble	808
Millhy 99	
Millhy 99 = 0.9826 + 0.0128 Clim. day -0.0205 Days regrowth -0.0032 Ave. ht0.0013 Cumul. precip. + 0.3472 % N stubble	.673
OWOAT	
Chowmaker 235	
Chowmaker 235 = 89.4092 + 0.0216 Clim. day -0.0723 Ave. ht0.0233 Cumul. precip.	.645
Sweet Sloux III	
Sweet Sioux III = 81.9481 + 0.0567 Clim. day + 0.0442 Ave. ht0.0226 Cumul precip0.0528 Regrowth deg. days + 0.3755 Previous total L.A.I.	.765

TABLE IV (Continued)

Coeff	Coefficients of
FS-531	
FS-531 = 85.1879 -0.0375 Days regrowth -0.0859 Ave. ht.	.90.
M111hy 99	
Millhy 99 = 96.4290 + 0.0509 Clim. day -0.0539 Cumul. precip10.9254 Previous L.A.I. below	.575
Abbreviations and units used:	
Ave. ht. = Average height of plant in field, cm. Clim. day = Climatic day, March 1 = Day 001,	
Days regrowth = Elapsed days since previous harvest. Regrowth deg. days = Regrowth degree days since previous harvest, base 15C, maximum allowed 35C.	
negrowin precip recipitation since previous narvest, mm. Cumul. precip. = Precipitation since emergence, mm.	
Total L.A.I. = Leaf area index of whole plant. Above leaf % = % leaf dry weight in total yield.	
Cumulative deg. days = Degree days since planting, base 15C, maximum allowed 35C. Previous L.A.I. below = Leaf area index of stubble at previous harvest.	35C.
Previous total L.A.I. = Leaf area index of whole plant at previous harvest.	

or climatic day occurred in various combinations in many models; however, some of the variables appeared in only a few models and illustrated genotypic differences. Even though these variables do not necessarily reflect a cause and effect relationship, the statistical process used to isolate the independent variables significantly related jointly to the dependent variables, to the exclusion of non-significant effects, should be useful in determining those factors affecting the plant responses. Coefficients of determination (\mathbb{R}^2) were high (> 0.80) for the most part, with only a few between .65 or .80. All partial regression coefficients presented in the models were significantly different from zero at $\mathbb{P} \geq 0.05$.

Yields

The predictive models for yield at each harvest all had R² values above 0.90. Average plant height and number of days of regrowth occurred in all of the yield models and were associated with increases in yields, except that number of days of regrowth of FS-531 plants had a negative effect on yield.

Chowmaker yields were further increased as total L.A.I. increased, but were decreased as previous stubble yields increased.

Sweet Sioux yields also were larger as the season progressed (climatic day increased). The other variables in the Sweet Sioux yield model had negative coefficients, meaning that cumulative precipitation, regrowth degree days, and previous stubble yield were related to decreased harvested yields.

FS-531 had a simple model of four independent variables for harvested yield. In addition to average plant height and number of days of regrowth, climatic day and above leaf percent (the above cut portion that is leaves) occurred in the model and were related to decreases in harvested yield.

Millhy was different, since all independent variables had positive coefficients, indicating relationships that helped to increase harvested yields. Climatic day, regrowth degree days, previous L.A.I. of the stubble, and total L.A.I., in addition to average plant height and days regrowth, were present in the model for Millhy.

Regrowth

The models for daily regrowth had three variables in common: average plant height, climatic day, and number of days of regrowth. Average plant height and climatic day tended to increase daily regrowth for all cultivars except Chowmaker. In the case of Chowmaker, however, increasing number of days of regrowth tended to decrease regrowth per day.

The Chowmaker model had two additional variables, one which increased daily regrowth (total L.A.I.) and one which decreased daily regrowth (the previous total L.A.I.).

Regrowth degree days and previous stubble yield were two other variables that tended to decrease the daily regrowth rate for Sweet Sioux. FS-531 had daily regrowth further decreased by cumulative precipitation. Millhy also had two additional variables: regrowth days tended to decrease regrowth, but the previous L.A.I. of the stubble tended to increase regrowth for Millhy.

Total N Percent

Two variables were common to all the total N percent models.

Total N percent tended to increase as climatic day increased, but number of days of regrowth tended to decrease total N percent.

Cumulative precipitation also tended to decrease total N percent for models of all cultivars except FS-531. The number and type of additional variables present varied with genetic differences.

Above leaf percent and previous L.A.I. of the stubble were present in the models for Chowmaker and Sweet Sioux. Total N percent was apparently increased as above leaf percent increased, and decreased as the previous L.A.I. below cut increased. Rainfall appeared to be important for total N percent of Chowmaker plants, since regrowth precipitation occurred in the predictive model and increased total N percent.

The Sweet Sioux model included cumulative degree days and total L.A.I., and these were related to an increase in total N percent, but the number of previous live culms tended to decrease total N percent.

FS-531 had the simplest model, with only three variables. Millhy and FS-531 both had N percent of the stubble related to an increase in total N percent. Millhy total N percent decreased as average plant height increased.

IVDMD

The models for IVDMD were the simplest developed. Coefficients of determination ranged from .58 to .90. Climatic day increased IVDMD in all models except that for FS-531. Cumulative precipitation decreased IVDMD in all models where it occurred. Average plant height decreased

IVDMD in Chowmaker and FS-531 models but increased IVDMD in the model for Sweet Sioux.

FS-531 had only two variables (average plant height and number of days of regrowth), and they both decreased IVDMD.

Additional variables present in the model for Sweet Sioux were regrowth degree days, which decreased IVDMD, and previous total L.A.I., which increased IVDMD. The previous L.A.I. of the Millhy stubble decreased IVDMD.

Conclusions

As indicated by the high R² values, most of the models explained the data very well. Some variables such as average plant height, climatic day, and cumulative precipitation, were common to many of the models. In other years and places the models may differ because of environmental differences that may tend to favor certain variables. However, within the constraints established by the 1976-1977 environments at Knoxville, several general conclusions may be drawn.

Chowmaker yields, daily regrowth, N, and IVDMD appear to be related to rainfall, the number of days of regrowth and climatic day, average plant height, present or past leaf area of the total plant and the stubble's previous yield or leaf area. Also, above leaf percent occurred in the total N model.

The dependent variables for Sweet Sioux appear to be related to some of the same variables as Chowmaker, number of days of regrowth, yield of previous stubble, average plant height and climatic day.

But only cumulative precipitation seems to be related to the dependent variables instead of regrowth precipitation, and temperature appears to be related because either cumulative degree days or regrowth degree days appear in all the models. Other variables that occasionally occur are previous number of live culm, previous L.A.I. of stubble, total L.A.I. and previous total L.A.I.

Number of days of regrowth occurred in all the models for the dependent variables of FS-531 and appears to be significant for prediction of FS-531. Other related independent variables include climatic day and average plant height. Cumulative precipitation occurred in the regrowth model and above leaf percent in the yield model. Total N percent of the stubble is related to total N percent of the plant for both FS-531 and Millhy.

The pearlmillet, Millhy, dependent variables are also related to climatic day, the number of days of regrowth and average plant height. The leaf area of the stubble is related to all of the dependent variables except total N percent. Other related variables included regrowth degree days, cumulative precipitation and total L.A.I.

Generally, climatic day tended to increase all the dependent variables except the daily regrowth of Chowmaker; average plant height tended to increase yields and daily regrowth, but it decreased total N percent and IVDMD, except the IVDMD of Sweet Sioux. The other common variable, number of days of regrowth, tended to increase yields, except for FS-531, and decreased all the other dependent variables in the models where it occurred.

VII. GENERAL DISCUSSION

The quality and quantity of DM produced, and other variables measured, varied with year, management, and cultivar. There were greater differences in yields and morphological characteristics among cultivars for the sorghum-sudangrass hybrids than for the pearlmillet. In DM yield, the sorghum-sudangrass hybrids ranged from about 6000 kg/ha to about 30,000 kg/ha, whereas the pearlmillet ranged from 7000 kg/ha to about 13,000 kg/ha, only a 6000 kg/ha difference.

Generally, DM was greater when plants were harvested at taller or more mature stages; this is in agreement with the results of Beuerlein et al. (2), Burger et al. (4), and Wedin (28). However, insufficient data were obtained from FS-531 to determine whether it yielded more in the B than in the EB stage of growth.

In agreement with Burger et al. (4), no yield difference existed when 90-cm growth was cut to either 8-or 15-cm stubble in 1977. On the other hand, when the B or PB cut was preceded by a 90-cm harvest cut to 8-or 15-cm stubble, Chowmaker plants yielded more than Sweet Sioux plants when the previous 90-cm harvest was cut to 15 cm, and Sweet Sioux plants yielded more when the PB or B cut was preceded by a 90-cm harvest cut to 8 cm. The season yields of Chowmaker were also larger in management '90-15, B-8' than in '90-8, B-8'. Sweet Sioux season yields were greater in management '90-8, PB-15' than in '90-15, PB-15'. These results are different from those of Burger et al. (4).

All cultivars had similar quality and yield performance when harvested at or below 90 cm. At 90-cm harvests, season yields were

around 10 metric tons for all cultivars. When the cultivars were harvested at later stages than 90-cm growth, differences among cultivars became apparent.

FS-531 was generally the highest yielding cultivar when allowed to reach the B or EB stages. If large amounts of DM of average quality are desired, then FS-531 could be managed '50-15, B-8' or '50-15, B-8, 75-15'.

Plants of FS-531 appeared to be slower in regrowth after harvesting than those of the other cultivars. The plants also had unusual tiller initiation growth. Tiller buds first grew horizontally along the ground then later curved upward toward a more vertical position. Culms of other cultivars grew almost vertically from the start of tiller initiation.

It was found that CP content and IVDMD decreased with each progressive advance in stage of maturity. This agrees with Sherrod et al. (22), but, in contrast to their results, CP levels were not less in regrowth material than in first growth material, as long as the plants were cut at the same continuous height or stage of growth throughout the season. This may be because Sherrod et al. (22) harvested plants in Hawaii at the heading or later stages of growth. The plants had an overall decrease in N percent as harvest continued over the season. Knoxville has a much shorter growing season than Hawaii with less time for regrowth, and most plants were harvested when at more immature stages than the heading stage. This may be why lower CP levels were not usually found in regrowth. Management '90-15' for Chowmaker in

1977 and management 'B-8' for Sweet Sioux in 1977 were the only ones where overall CP levels decreased over the season for harvests at a constant height or stage of growth.

N content and IVDMD were higher when plants were harvested at lower heights, or more frequently, than at taller heights. This agrees with the results of many others (4, 7, 11, 14, 16, 21, 22, 26, 28).

Results similar to Burger et al. (4) were obtained for N percent for the first 90-cm harvest cut to 15 or 8 cm. The other harvests for managements '90-15' and '90-8' were not consistent in N percent. The material cut to 15-cm stubble was always higher in N percent than the material cut to 8-cm stubble in the first harvest.

In 1976 the first two-thirds of June were dry (Figure III, p. 29), and the end of July and August had rain that was well distributed. This helped regrowth. The latter parts of August and September were drier, resulting in good haymaking weather, but growth had also slowed. July was droughty in 1977, and August had mostly small showers which did not increase soil moisture very much. This may be another reason why N percent was lower in 1977 than in 1976. Moisture was adequate the rest of the year in 1977.

Chowmaker plants yielded more and had the same or higher N percent and the same IVDMD when cut to 15-cm stubble than when cut to 8 cm.

Sweet Sioux plants, on the other hand, yielded more when stubble was 8 cm than when it was 15 cm. The N percent was about the same, and the IVDMD was not different with 8-or 15-cm stubble for Sweet Sioux.

The pearlmillet slowed production in September and October due to its

sensitivity to frost and cold (12, 19). It was observed that after some very cool nights, the leaves turned brown, and growth was not apparent in the field. This resulted in a shorter effective growing season for pearlmillet than for the sorghum-sudangrass hybrids. This observation agrees with those of Fribourg et al. (1975), Overton et al. (1972), and McCarter et al. (1977).

It was also difficult to maintain constant quality and large DM production of pearlmillet because the average plant height of physiologic stages of maturity decreased as the growing season progressed. This finally resulted in plants which, at the EB stage, had plant heights below 90 cm and sometimes below 50 cm.

Plants preceded by 50-cm or 90-cm harvests had responses that differed according to cultivar. The 50-cm cut previous to the B or EB cuts delayed harvest only for FS-531. The other cultivars reached the B or EB stages at the same time as plants cut at B or EB, whether that harvest was preceded by a 50-cm cut or not. If preceded by a 50-cm cut, the B or EB stages occurred at shorter heights for all cultivars, except FS-531. It is not known why this is so, but perhaps FS-531 plants are not as sensitive to daylength as the other cultivars. The 90-cm cut before the B or EB cuts delayed harvest for all cultivars, probably because all regrowth originated from axillary meristems. Most primary meristems had been removed; this may not have been the case in the 50-cm cuts, as indicated by average meristem and stubble heights (Figures VII and VIII, pp. 39, 40). The delayed harvests may be beneficial in helping to produce more DM later in the season when it may be more desirable or needed.

All cultivars had the highest quality when cut at 90 cm or below. Chowmaker plants seemed to perform best when cut at 90 cm or below, '90-15, PB-15' or when an EB harvest was preceded by a 50-cm cut. A stubble height of 15 cm for Chowmaker plants seemed important in maintaining high yields and quality.

An 8-cm stubble resulted in higher seasonal yields and sometimes higher quality for Sweet Sioux plants. The B or PB preceded by a 90-8 cm cut performed well. In 1976 the B or PB preceded by a 50-15 harvest had good quality and yields, but it is not known if 8-cm stubble would improve this. The higher rate of N applied in 1977 increased N content of Sweet Sioux in early summer.

FS-531 plants performed best when subjected to managements '50-15, B-8' or '50-15, B-8, 75-15'. This cultivar had high yields under these managements with fair quality and outyielded the other cultivars when allowed to reach the B or EB stages of growth. Plants subjected to a 90-15 cm harvest before a B harvest did not perform as well as plants managed '50-15, B-8'.

Millhy yield or quality were not affected by the managements studied. The 'PB-15' management, or any harvested before EB, was satisfactory. The higher rate of N applied in 1977 increased N content.

These results indicate that yield trials of many varieties give only limited information on the performance of a cultivar. Each sorghum-sudangrass cultivar performs better than other cultivars in terms of yield or quality, when subjected to specific managements, and these will vary with genotype response. An understanding of specific management applications for specific cultivars will help obtain better performance in the field in terms of yield and quality in the future.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Sorghum-sudangrass hybrids and improved pearlmillets produce large amounts of forage in summer when most cool season forage crops have slowed production.

To determine some plant and environment characteristics and the extent of cultivar x management interaction over a broad spectrum of managements, four summer annual grass cultivars were subjected to 19 different defoliation frequency and stubble height managements at Knoxville, Tennessee in 1976 and 1977. The cultivars were Chowmaker 235, Sweet Sioux III, FS-531 sorghum-sudangrass hybrids and Millhy 99 pearlmillet. The plots were sidedressed with N twice during the summer and two samples were taken at each harvest, one large one to determine DM production, and a smaller one for determination of leaf area, dry weights of representative parts, meristem heights, N content and in vitro dry matter digestibility IIVDMD). Predictive models were developed for yield at each harvest, regrowth per day (kg/ha/day), total N percent and IVDMD.

Quality, morphological characteristics, and quantity of DM produced varied with year, management, and cultivar. The sorghumsudangrass hybrids outyielded the pearlmillet when harvested later than the 90-cm height, but high quality and similar yields (10 metric tons/ha) were obtained when harvested at 90 cm.

When cut at 90 cm, stubble heights of 15-or 8-cm had no effect on yields or IVDMD, and resulted in similar N content. However, a 90-cm harvest cut to 15-or 8-cm stubble before a boot or early bloom harvest resulted in greater season yields for Chowmaker than for Sweet Sioux. Generally, Chowmaker performed best when cut to 15-cm stubble, and Sweet Sioux when cut to 8-cm stubble, when the stage of growth at harvest was earlier than the boot stage.

The pre-boot, boot or early bloom harvests were delayed by a previous 90-cm harvest for all cultivars, and N content sometimes was increased. A previous 50-15 cm harvest before an early bloom or boot harvest delayed the early bloom and boot harvests of FS-531, but did not delay those of the other sorghum-sudangrass hybrids and pearlmillet. These had greater N content as a consequence of the previous cut. The first pre-boot stage harvest of Sweet Sioux following a 50-15 cm harvest also had a larger N percent than the first pre-boot harvest of plants managed 'PB-15'. Material harvested at more mature or taller stages of growth were low in total N percent but relatively high in IVDMD.

The number of days since March 1, average plant height and the number of days during regrowth all were important predictors of harvested yields, daily regrowth, total N and IVDMD. These four dependent variables were increased as number of days since March 1 increased, except for the daily regrowth in the Chowmaker model. As average plant height at harvest increased, yields and daily regrowth increased, but N percent and IVDMD generally decreased. The number of days of regrowth generally increased yields and decreased all the other dependent variables.

Chowmaker plants performed best when growth before the boot stage was cut to 15-cm stubble. The performance of plants generally was related to rainfall, and many of the managements studied were suitable. Management '50-15, EB-8, 75-15' was favorable for quality and yield. Sweet Sioux plants performed best when growth was cut to 8 cm, and the dependent variables were related not only to the three independent variables listed above, but also cumulative rainfall and temperature.

The number of days of regrowth was related to all the dependent variables for FS-531. FS-531 plants yielded more than other cultivars when allowed to reach taller stages.

In addition to the number of days since March 1, the number of days for regrowth, and average plant height, leaf area of the stubble also were important in the Millhy models. This cultivar was not responsive to management.

LITERATURE CITED

LITERATURE CITED

- Barr, A. J., H. Goodnight, J. P. Sall, and Jane T. Helwig. 1976. SAS 76. Sparks Press, Raleigh, N. C. 329 p.
- 2. Beuerlein, James E., Henry A. Fribourg, and Frank F. Bell. 1968. Effects of environment and cutting on the regrowth of a sorghum-sudangrass hybrid. Crop Science 8:152-155.
- 3. Bhatia, I. S., Rangil Singh, K. K. Dogra and Saroj Dua. 1975. Changes in cell-wall carbohydrates and lignin of some foragetype millets as affected by growth stage. Jour. of the Science of Food and Agri., 26:1391-1398.
- 4. Burger, A. W. and C. N. Hittle. 1967. Yield, protein, nitrate, and prussic acid content of sudangrass, sudangrass hybrids and pearl millets harvested at two cutting frequencies and two stubble heights. Agron. J. 59:259-62.
- Cochran, W. G., and G. M. Cox. 1957. Experimental designs, John Wiley & Sons, Inc., New York. pp. 396-428.
- 6. DeWet, J. M. J. and J. R. Harlan. 1971. The origin and domestication of Sorghum bicolor. Econ. Bot. 25:128-135.
- 7. Edwards, Ned, Jr., Henry A. Fribourg, and M. J. Montgomery. 1971.
 Cutting management effects on growth rate and dry matter digestibility of the sorghum-sudangrass cultivar Sudax SX-111. Agron
 J. 63:267-271.
- 8. Escalada, Rodolfo G. and Donald L. Plucknett. 1975. Ratoon cropping of sorghum: I. Origin, time of appearance and fate of tillers. Agron. J. 67:473-478.
- 9. and . 1975. Ratoon cropping of sorghum: II. Effect of daylength and temperature in tillering and plant development. Agron. J. 67:479-484.
- 10. _____ and ____ . 1977. Ratoon cropping of sorghum. III. Effect of nitrogen and cutting height on ratoon performance. Agron. J. 69:341-346.
- 11. Fribourg, H. A., B. N. Duck and E. M. Culvahouse. 1975. Forage sorghum yield components and their in vivo digestibility. Agron. J. 68:361-365.

- 12. Fribourg, H. A., W. E. Bryan, F. F. Bell, and G. J. Buntley. 1975. Performance of selected silage and summer annual grass crops as affected by soil type, planting date, and moisture regime. Agron. J. 643-647.
- 13. Fribourg, H. A., Joseph R. Overton, and James A. Mullins. 1975. Wheel traffic on regrowth and production of summer annual grasses. Agron. J. 67:423-426.
- 14. Hart, Richard H. 1967. Digestibility, morphology, and chemical composition of pearl millet. Crop. Sci. 7:581-584.
- National Research Council. 1976. Nutrient Requirements of Beef Cattle. National Academy of Sciences. Washington, D. C. 56 p.
- 16. Mays, David A., James R. Peterson, and H. T. Bryant. 1966. A clipping management study of two sudangrass-sorghum hybrids, sudangrass, and Gahi millet for forage production. Res. Rep. 113 Va. Agric. Exp. Stat.
- 17. McCartor, M. M. and F. M. Rouquette, Jr. 1977. Grazing pressures and animal performance from pearl millet. Agron. J. 69:983-987.
- Metcalf, R. A., A. Fernandy and R. F. Williams. 1975. The genesis of form in Bulrush millet. Aust. J. Bot. 23:761-773.
- 19. Overton, Joseph R. and Henry A. Fribourg. 1972. Dates of planting summer annual grasses for forage. Tennessee Farm and Home Sci. Rep. 83.
- 20. Schaffert, R. E. 1973. Protein quantity, quality, and availability in <u>Sorghum bicolor</u> (L.) Moench grain. Dissertation Abst. Int. 34:26.
- 21. Sehgal, K. L. and A. K. Goswami. 1960. Composition of pearl-millet plants at different stages of growth with special reference to the Oxalic acid content. Indian J. Agric. Sci. 39:72-80.
- 22. Sherrod, Lloyd B., Yusuf N. Tamimi and Stanley M. Ishizaki. 1968. Effects of stage of maturity upon yield, composition and nutritive value of whole plant corn and forage sorghum. Tech. Bull. 72. Hawaii Agric. Exp. Stat. 15 p.
- 23. Srivastava, V. C. 1969. Effect of nitrogen levels, seeding rates and cutting on yield and protein content of sorghum forage.

 Madras Agric. J. 56:99-103.

- 24. Thomas, R. L., R. W. Sheard, and J. R. Moyer. 1967. Comparison of conventional and automated procedures for nitrogen, phosphorus, and potassium analysis of plant material using a single digestion. Agron. J. 59:240-243.
- 25. Tilley, J. M. A. and R. A. Terry. 1963. A two stage technique for the <u>in vitro</u> digestion of forage crops. J. Brit. Grassl. Soc. 18:104-111.
- 26. Tomeu, Angela. 1974. Study of forage yield components in sorghum. "Proceedings of the 12th Int. Grassland Congress. Grassland Utilization." 3(2):1004-1014.
- 27. Tomeu, Angela, J. A. Pena, and J. Perez. 1974. Study of local and introduced forage sorghum. "Proceedings of the 12th Int. Grassland Congress. Grassland Utilization." 3(2):991-1003.
- 28. Wedin, W. F. 1970. Digestible dry matter, crude protein, and dry matter yields of grazing-type sorghum cultivars as affected by harvest frequency. Agron. J. 62:359-363.

CRAMES & TOPEST

APPENDIX

TABLE V

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT IVDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF CHOWMAKER 235 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

	ABOVE			0.14	HZ SAP	PLE			100 March 200 Ma			I	N-VIETE	10	TAL	ALCOHOLOGY OF THE PARTY OF THE		
	TIELD,	14	BELOW	ABOVE	VES	ABOVE	+ LEAVES BELOW	ABOVE			STEMS		DRY	AROUZ RET	DOEN	LEAF	AREA	INDEX
DATE	MZ SAMPLE	COL	CUT	CUT	COL	COT	COT	GROUND	H	15	DEAD	LIVE	DICEST	CEL	COL	COL	GROUND	25
			1	184	DR - 1		1 1 1	1 1 1	5	- n/	- 74	1				100 C		
MGT 1: 50-CM GROWTH CUT TO 15-CM ST	-CM GROWTH	CUT TO 1	S-CM ST	UBBLE														
11 JUNE	638	54	736	1155	162	1200	277	2006		946								
18 JUNE	618	418	771	960	163	1270	900	2000		ECT .	> 0	100	81.3	2.43	2.29	2.42	2.72	0.30
28 JUNE	815	344	1087	1557	78	1000	1173	2575	28	196	0	100	80.7	2.29	1.50	2,35	2.69	0.34
13 JULY	878	388	920	070	310	1206	2010	20/2	• ;	210	0	100	78.7	2.84	2.00	3.48	3.77	0.29
	949	147	727	200	011	1326	1048	2375	19	151	32	81	77.4	2.25	1.05	2.18	2.24	0.06
	000	747	106	765	33	639	1033	1672	52	140	32	81	77.6	2.13	0.64	1.18	1.26	000
	757	151	11/0	628	83	779	1252	2031	94	188	102	75	79.2	3.10	1.30	1 51	1 56	000
20 AUG	473	18	725	298	29	316	753	1069	50	151	102	59	83.0	3.60	1 73	15.0	4.00	0.00
	400	83	954	484	22	267	976	1543	51	145	10	. 5	70.7	2000	3 54	10.0	79.0	90.0
17 SEPT	202	111	911	309	29	420	940	1360	97	124	126	15	26.0	2 13	1.24	1.40	1.29	0.03
14 OCT	665	32	685	248	25	280	710	066	36	178	65	73	81.5	3 50	76.7	0.72	0.70	0.01
MGT 2: 90-	90-CM GROWTH CUT TO 15-CM S1	TOT TO	S-CH ST	UBBLE											70.0	0000	0.00	30.0
16 JUNE	1571	456	806	1466	135	1921	1042	2964	06	194	c	100	77 2	9 90				
Z JULY	1720	1507	1543	2375	323	3882	1866	5748		248	37	10	70.07	2.50		0.40	3.70	0.30
21 JULY	1551	800	1679	1589	126	2390	1805	4194	. 50	276	27	77	2007	1.73	0.87	5.18	5.45	0.26
13 AUG	1815	657	1295	1048	29	1704	1324	3028	400	1001	200	20	12.7	7.71	0.90	3.61	3.73	0.11
3 SEPT	1489	617	1823	1521	51	2138	1884	2050	27	220	155	90	/2.1	2.83	1.44	2.42	2.46	90.0
19 OCT	2155	1069	2006	1790	29	2860	2034	4894	84	334	100	70	70.0	2.77	1.65	3.47	3.54	0.07
ICR 3: PRE-	MGR 3: PRE-BOOT CUT TO 15-CM STUBBL	70 15-CM	STUBBL	63								3	0.6	7.30	1.40	7.50	2.55	0.05
30 TIME	5807	2640	1200	2706	10													
17 AUG		6130	2370	2006	61	7017	1871	8636	12	145	0	001		1.43	0.52	7.25	7.31	90.0
28 SEPT	2716	1191	1826	1388	67	2580	1873	8458	210	237	140	63		1.43	0.58	5.76	5.78	0.05
GT 4: BOOT	MGT 4: BOOT CUT TO 8-CM STUBBLE	CM STUBI	BLE						3	767	ri i	3		2.05	0.86	2.65	2.69	0.0%
19 JULY 9 SEPT	16681 1	15646 5016	1411	7028	60 2	22674	1471	24145	256	100	~;	88	61.2	0.63	0.35	12.46	12.46	0.00
MGT 5: EARI	EARLY BLOOM CUT TO 8-CM STUB	T TO 8-	CM STUBE	BLE					1	074	00		1.90	1.48	1.83	5.64	5.64	0.00
28 JULY 28 SEPT	16784 1	17531	1582	5895	0 8	23426	1582	25008	281	97	'n	95 6	52.6	0.53	0.29	9.44	9.44	0,00
			200	2222		04671	13/4	13720	236	191	20			1.13	0.74	6.89	6.89	0.00

TABLE V (Continued)

The color The		ABOVE	0		0.14	0.14 MZ SAMPLE	PLE						IN-	IN-VITRO	TOTAL	VI.	100 M		
UBBLE ONCE, THEN 90-CR CUT TO 15 CM 1715 133 2352 1645 3997 87 210 0 100 75.8 2.87 1.94 4.58 4.78 1716 68 1636 1467 1661 3189 2244 1505 3181 89 2.87 1.94 1.95 1.94 4.78 1726 29 2616 1862 3189 87 210 0 100 75.8 2.87 1.94 4.58 4.78 1726 29 2616 1862 3232 1862 328	האת	YIELD,		BELOW	21	BELOW	ABOVE	BELOW	ABOVE		2			TTER A	E	GEN	ABOVE		NDEX
UBBLE ONCE, THEN 90-CM CUT TO 15 CM 11715 1131 2352 1645 3997 87 210 0 100 75.8 2.87 1.94 4.58 4.78 11726 29 264 1505 3189 95 287 61 83 75.7 2.18 1.07 3.33 3.65 11000 86 1467 1661 3129 85 274 219 67 75.7 2.18 1.07 3.23 3.65 11000 86 1467 1661 3129 85 274 219 67 75.7 2.18 1.07 3.23 3.65 11000 86 1467 1661 3129 85 274 219 67 75.7 2.18 1.07 3.23 3.65 11000 86 1467 1661 3129 82 274 86 77 76.5 2.06 1.57 2.23 11000 86 1467 1661 3129 82 274 86 77 76.5 2.06 1.57 2.23 11000 86 1467 1661 3129 82 274 86 77 76.5 2.06 1.57 2.23 11000 86 1467 1661 3129 82 274 86 77 76.5 2.06 1.57 2.33 11000 86 1467 1661 3129 82 274 86 77 76.5 2.06 1.57 2.33 11000 86 1467 1661 3129 82 286 77 70 15 CM TO 15 C	DALE	M- SAULLE	1	COL	100	COL	COI	COL	GROUND	- 1	LIVE	8	- 1	GEST.	CUI	COL	CUI	GROUND	COT
UBBLE ONCE, THEN 90—CM CUT TO 15 CH 1715 133 2352 1645 3997 87 210 0 100 75.8 2.87 1.94 4.58 4.78 1727 189 2284 1505 3189 95 287 61 83 75.7 2.28 1.95 2.87 2.95 1726 68 1467 1666 13129 85 244 229 67 75.7 2.33 0.93 226 2.34 1726 78 1467 1661 3129 85 242 86 74 76.5 3.06 1.57 2.29 1.37 1726 29 26.6 1867 1661 3129 85 274 210 5.7 76.5 3.06 1.57 2.29 2.35 1726 102 122 1284 980 2264 44 280 27 91 2.84 2.11 2.34 2.35 1890 61 25 1345 1392 2738 67 18 18 69 2.22 0.96 2.22 0.96 1891 61 220 1263 200 84 1858 200 65 253 118 68 2.09 1.28 1.81 1.91 1891 61 1202 1399 6102 1263 1991 65 253 118 68 2.09 1.28 1.81 1.91 1892 61 1202 1399 610 15 CH CUT TO 15 CH TO 15			1 1 1		- K8/	na	1 1 1			CH	m/u -	- 7		%					
1775 133 2352 1645 3997 87 210 0 100 75;8 2.87 1.94 4.58 4.78 1.273 1895 2284 1595 2118 85 264 129 67 75;7 2.13 0.93 226 2.34 1.286 1867 1861 3129 85 274 210 87 75;7 2.13 0.93 226 2.34 1.286 2264 289 67 76;5 3.06 1.57 2.29 2.35 2.35 1.286 2264 4478 91 242 242 2.18 2.18 2.34 2.11 2.34 2.35	CT 6: 50	-CM GROWTH	CUT TO	15-CM ST	- 1	NCE, TH	IEN 90-C	M CUI TO	15 CM										
1715 133 2352 1645 3997 87 210 0 100 75.8 2.87 1.94 4.58 4.78 1273 189 2284 1505 3789 95 287 61 83 75.7 2.28 1.07 3.53 5.55 1066 1505 3789 95 287 212 2.28 1.07 3.53 2.35 1066 1505 3789 95 287 212 2.28 1.07 3.53 2.35 1066 1505 1310 242 86 74 76.6 2.36 1.19 3.45 2.35 2.35 1065 1310 242 86 74 76.6 2.36 1.19 3.45 3.45 2.35	11 Trents																		
1715 189 2224 1655 3997 87 210 0 100 75.8 2.87 1.94 4.58 4.78 1.05 1	AL JONE																		
1273 189 2244 1505 3789 95 287 61 81 75.7 7.28 1.07 3.53 3.65 1006 68 1467 1661 3129 85 244 129 67 75.7 2.13 0.93 226 2.34 1026 68 1467 1661 3129 85 244 129 67 75.7 2.13 1026 162 1862 4478 91 242 86 74 76.6 2.36 1.19 3.42 3.45 1026 126 1662 1862 4478 91 242 86 74 76.6 2.36 1.19 3.42 3.45 1027 128	24 JUNE		637	1512	1715	133	2352	1645	3997	87	210	0			2 87	40 1	4 50	7 30	
1066 68 1636 1575 3211 85 264 129 67 757 713 0.93 3.26 3.34 3.25 3.4			1012	1316	1273	189	2284	1505	3789	90	287	61			000	1.01	4.30	4.70	0.20
1080 86 1467 1661 3129 85 2544 2129 757 757 757 757 2139 2126 2134 1726 29 2616 1862 4478 91 242 86 74 76.6 2.36 1.19 3.42 3.45 1726 29 2616 1862 4478 91 242 86 74 76.6 2.36 1.19 3.42 3.45 1726 29 2616 1862 4478 91 242 86 74 76.6 2.36 1.19 3.42 3.45 240 122 1284 980 2264 44 280 27 91 2.24 2.22 0.96 2.22 250 26 1012 2134 2025 84 280 27 91 2.24 2.21 2.25 251 2134 2135 2035 67 213 108 69 3.34 1.75 2.21 2.25 252 2134 2139 2035 67 213 108 68 2.09 1.28 1.81 1.91 253 264 253 264 273 273 273 273 273 273 2506 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 251 203 5812 2144 7786 178 167 81 67 773 1.90 252 253 1109 2537 3445 57 57 77 1.90 254 255 273 2447 76 366 188 66 2.24 1.39 2.35 2.35 251 252 2745 1769 4514 88 296 108 74 2.46 1.19 2.34 2.55 252 2738 2738 273 2748 274	5 AUG		570	1507	1066	89	1636	1575	2211	200	256	70	X		97.7	T.0/	3.53	3.65	0.13
1726 29 240 1001 3142 3142 315 244 210 57 76.5 3.06 1.157 2.29 2.35 1.156 1.157 2.29 2.35 1.158 2.20 2.46 44 280 274 747CE, THEN 75 CM TO 15	26 AUG		387	1575	1080	90	1467	2002	7777	000		677			2.13	0.93	226	2.34	0.07
Value Valu	28 SEPT		008	1033	7700	000	7407	1991	3129	85		210	57 7		3.06	1.57	2.29	2.35	0.05
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940 122 1284 980 2264 44 280 27 91 2.84 2.11 2.34 2.53 197 226 1012 1345 2357 88 280 89 82 2.22 0.075 3.93 2.35 1970 61 5809 1263 7072 84 156 81 74 161 1.81 0.75 3.93 3.94 1048 25 1145 1392 2010 67 231 108 69 3.34 1.75 2.22 2.35 87 61 1209 1263 2925 67 178 124 60 3.24 1.65 2.70 2.73 87 61 1209 1263 2925 67 178 124 60 3.24 1.65 2.70 2.73 87 61 1209 1263 2925 67 178 124 60 3.24 1.65 2.70 2.73 87 61 1209 1263 2925 67 178 124 60 3.24 1.65 2.70 2.73 1812 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 2.73 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 1818 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.89 1.63 1.82 1.82 1181 8.50 0.89 1.63 1.83 1.82 1181 8.50 0.89 1.63 1.83 1.82 1181 8.50 0.89 1.63 1.83 1.83 1.83 1.83 1.83 1.83 1.83 1.8	CT 7: 50	-CM GROWTH	CUT TO 1	.5-CM ST	UBBLE	NCE, TH	UEN 90 CA	-	CM ONCE.		B	15 CM		THEN	75 CM	TO 18			100
940 122 1284 980 2264 44 280 27 91 2.84 2.11 2.34 2.53 80 80 276 112 1284 2135 2357 88 28 28 8 8 8 8 8 8 1392 1283 87 28 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	11 JUNE		-																
940 122 1284 980 2264 44 280 27 91 2.34 2.11 2.34 2.53 850 850 89 82 2.22 2.22 2.22 2.36 850 89 82 2.72 2.22 0.96 2.22 2.32 2.36 870 84 156 81 74 1.81 0.75 3.93 3.94 1.05 8.0 1345 2357 84 156 81 74 1.81 0.75 3.93 3.94 1.05 87 1345 1392 2738 67 178 108 68 1.344 1.75 2.21 2.25 897 61 1202 1399 2601 65 253 118 68 1.269 1.289 1.289 1.635 1399 2601 65 253 118 68 1.289 1.289 1.289 1.280 1.281 1.81 1.899 1.289 1							•				•						100		
940 122 1284 980 2264 44 280 27 91 2.84 2.11 2.34 2.53 1970 2162 1345 1345 2357 88 158 82 2.22 2.36 1970 81 1289 1263 7072 84 156 89 82 2.22 0.96 2.22 2.36 1970 81 2.34 156 81 7072 84 156 81 74 158 1.81 0.75 2.21 2.25 81 1289 1263 2792 867 218 1289 89 82 2.59 1.81 1.81 1.81 1.81 1.829 1636 2935 67 178 124 60 3.24 1.65 2.70 2.73 84 1.81 1.829 1636 2935 67 178 124 60 3.24 1.65 2.70 2.73 1881 1289 1636 2935 67 178 124 60 3.24 1.65 2.70 2.73 1881 1289 1636 2935 118 68 3.24 1.65 2.09 1.28 1.81 1.91 1.81 1.81 1.91 1.82 1.82 1.82 1.82 1.81 1.91 1.82 1.82 1.82 1.82 1.82 1.82 1.82 1.8	30 TIME		36.6	. 010	. 070					•							•		
State Stat	12 1111		1000	000	240	771	1784	980	7794	44	280	27	91		2.84	2.11	2.34	2.53	0.18
1970 61 5809 1263 7072 84 156 81 74 1.81 0.75 3.93 3.94 1048 25 1345 1392 2738 67 231 108 69 3.34 1.75 2.21 2.25 897 11 1299 1636 2935 67 273 118 68 . 2.09 1.28 1.81 1.91 1988LE ONCE, THEN PRE-BOOT CUT TO 15 CM 178 118 68 . 2.09 1.28 1.81 1.91 2966 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.99 1.63 1.82 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.99 1.63 1.82 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.99 1.63 1.82 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.99 1.63 1.82 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.89 1.63 1.82 2189 50 5612 2174 7786 178 167 81 67 70.3 1.30 0.89 1.63 1.82 2189 50 5612 2174 7786 188 198	TO THE		191	1069	850	276	1012	1345	2357	58	280	59	82		2.22	96.0	2.22	25 6	71.0
1048 25 1345 1392 2738 67 231 108 69 . 3.34 1.75 2.25 2.75 2.75 877 877 877 877 877 877 877 877 877 8	30 JULY		3839	1202	1970	19	5809	1263	7072	84		81	74		2	0.75	000	200	3 6
872 11 1299 1636 2935 67 178 124 60 3.24 1.65 2.70 2.73 897 61 1202 1399 2601 65 253 118 68 . 2.09 1.28 1.81 1.91 UBBLE ONCE, THEN PRE-BOOT CUT TO 15 CA. 2906 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.94 5.14 5.16 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.94 5.14 5.16 2189 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.99 1.63 1.82 2662 208 5881 1241 7122 168 135 0 100 1.33 0.64 5.39 5.47 2671 118 936 157 3319 99 183 86 67 0.78 1.99 2.84 1173 11 1762 1557 3319 99 183 86 66 2.94 1.33 3.55 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.44 1521 22 2745 1769 4514 88 296 108 74 . 2.46 1.19 2.84 2737 29 17308 1080 18388 231 102 5 94 1.35 0.66 10.63 10.63 2740 18 8923 1568 10491 201 145 102 59 . 1255 0.72 6.76 6.77	20 AUG	1082	298	1367	1048	25	1345	1392	2738	67		108	60		76	1 75	2000	3000	10.0
897 61 1202 1399 2601 65 253 118 68 . 2.09 1.28 1.81 1.91 UBBLE ONCE, THEN PRE-BOOT CUT TO 15 CM 2906 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 2189 50 5612 2174 7786 178 167 81 57 70.3 1.50 0.94 5.14 5.16 915 93 1109 2537 3645 57 350 291 55 75.4 1.90 0.89 1.63 1.82 UBBLE, PRE-BOOT CUT TO 15 CM, 50 CM CUT TO 15 CM, EACH ONCE, THEN 75 CM CUT TO 15 CM 2662 208 5881 1241 7122 168 135 0 100 1.33 0.64 5.39 5.47 2671 118 936 1511 2447 75 32 264 75 78 2.72 0.78 1.90 2.05 1173 11 1762 1557 3319 90 183 86 70 2.29 0.78 1.90 2.05 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.43 3.55 1521 65 2113 2357 4471 76 366 108 74 2.46 1.19 2.84 2.84 1UNBLE ONCE, THEN BOOT CUT TO 8 CM 1UNBLE ONCE, THEN BOOT CUT TO 8 CM 100 100 1.33 0.66 10.63 10.63 10.63 2740 1.19 2.84 2.84 2.84 2740 1.10 2.20 0.78 1.00 2.05 2751 2.2 2745 1169 4514 88 296 108 74 2.46 1.19 2.84 2.84 2752 2745 1188 8923 1568 1089 18388 231 102 5 94 1.25 0.72 6.76 6.77	3 SEPT	966	427	1625	872	11	1299	1636	2035	67		761	200		***	1.17	17.7	2.45	0.00
UBBLE ONCE, THEN PRE-BOOT CUT TO 15 CH 2906 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 2189 50 5612 2174 7786 178 167 70.3 1,50 0.94 5.14 5.16 2189 50 5612 2174 7786 178 167 167 15 CH 262 208 5881 1241 7122 168 135 0 100 1.33 0.64 5.39 5.47 671 118 936 1511 2447 78 33 264 75 78 2.72 0.78 1.90 2.05 1173 11 1762 1557 3319 90 183 86 70 2.29 0.78 1.90 2.05 11521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.45 11521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.45 11521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.55 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.45 1521 72 2745 1769 4514 88 296 108 74 2.46 1.19 2.84 2.84 TUBBLE ONCE; THEN BOOT CUT TO 8 CH TUBBLE ONCE; THEN BOOT CUT TO 8 CH	12 OCT	1386	305	1338	897	19	1202	1399	2601	2 2		101	00		57.0	T-02	2.70	2.73	0.02
2906 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 2189 50 56 56 57.0 0.99 0.34 5.70 5.70 2189 50 5612 2174 7786 178 167 70.3 1,50 0.99 0.34 5.14 5.16 2189 50 5612 2174 7786 178 167 70.3 1,50 0.99 0.34 5.14 5.16 2189 50 5612 2174 7786 178 167 70.3 1,50 0.99 0.34 5.14 5.16 2189 50 5612 2174 7786 178 167 70 15 CM CUT TO 15 CM CUT T	- O -	- CO							TOOP	6		077	00		60.7	1.28	1.81	1.91	0.10
2906 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 2189 50 5612 2174 7786 178 167 81 67 70.3 1,50 0.94 5.14 5.16 1.82 1109 2537 3645 57 350 291 55 75.4 1.90 0.89 1.63 1.82 1.82 1.82 1109 2537 3645 57 350 291 55 75.4 1.90 0.89 1.63 1.82 1.82 1.82 1.82 1.82 1.82 1.82 1.82	06 :0 75	-CM GKOWIH	CUT TO	S-CM SI	UBBLE	NCE, TH	EN PRE-1	BOOT CUT	-	H									
2906 68 8453 1812 10265 195 113 59 67 67.0 0.99 0.34 5.70 5.70 5.18 50 5612 2174 7786 178 167 81 67 70.3 1.50 0.94 5.14 5.16 5.16 915 82 1109 2537 3645 57 350 291 55 75.4 1.90 0.89 1.63 1.82 1.82 1.82 1.82 1.82 1.82 1.82 1.82	16 JUNE																		
2662 208 5881 1247 7122 168 135 0 100 1.33 0.64 5.39 5.47 5.47 5.51 1173 11 1762 1557 4471 76 366 178 168 66 2.94 1.33 3.43 3.55 1551 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.43 3.55 2.57 2.54 1.30 0.89 1.63 1.82 2.57 2.57 2.57 2.57 2.57 2.57 2.57 2.5	21 JULY		2567	1766	2906	6.9	2452	1019	1006										
THE PRE-BOOT CUT TO 15 CM, 50 CM CUT TO 15 CM, EACH ONCE, THEN 75 CM CUT TO 15 CM, 50 CM,	1 SEPT		3423	2126	2180	3 5	5613	2127	10702	250		60	9 /9		.99	0.34	5.70	5.70	0.00
108 LE, PRE-BOOT CUT TO 15 CM, 50 CM CUT TO 15 CM, EACH ONCE, THEN 75 CM CUT TO 15 CM 2662 208 5881 1241 7122 168 135 0 100 1.33 0.64 5.39 5.47 11 18 936 1511 2447 53 264 75 78 2.72 0.78 1.90 2.05 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.45 1521 22 2745 1769 4514 88 296 108 74 2.46 1.19 2.84 2.84 1521 22 1745 100 CUT TO 8 CM 1531 29 17308 1080 18338 231 102 5 94 1.25 0.72 6.76 6.77 1531 29 17308 1080 18338 231 102 5 94 1.25 0.72 6.76 6.77	19 OCT		761	2445	015	200	1100	4/17	00//	1/0		18	1/ /9		50	0.94	5.14	5.16	0.01
2662 208 S881 1241 7122 168 135 0 100 1.33 0.64 5.39 5.47 671 118 936 1511 2447 53 264 75 78 2.72 0.78 1.90 2.65 671 118 936 1511 2447 53 264 75 78 2.72 0.78 1.90 2.05 1173 11 1762 1557 3319 90 183 86 70 2.29 0.78 2.55 2.57 1521 22 2745 1769 4514 88 296 108 74 2.46 1.19 2.84 2.84 1521 22 2745 1769 4514 88 296 108 74 2.46 1.19 2.84 2.84 1521 23 108 8 29 108 74 2.84 2.84 573 29 <t< td=""><td></td><td></td><td>171</td><td>Chh7</td><td></td><td>2</td><td>1109</td><td>1507</td><td>3045</td><td>2/</td><td></td><td>162</td><td>55 7.</td><td></td><td>90</td><td>0.89</td><td>1.63</td><td>1.82</td><td>0.19</td></t<>			171	Chh7		2	1109	1507	3045	2/		162	55 7.		90	0.89	1.63	1.82	0.19
2662 208 5881 1241 7122 168 135 0 100 1.33 0.64 5.39 5.47 671 118 936 1511 2447 53 264 75 78 2.72 0.78 1.90 2.05 1173 11 1762 1557 3319 90 183 86 70 2.29 0.78 2.55 2.57 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.43 3.55 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.43 3.55 2.57 1521 65 2132 2745 1769 4514 88 296 108 74 2.46 1.19 2.84 2.84 2.84 2.84 2.84 2.84 2.84 2.84	3R 9: 50-	-CM GROWTH	CUT TO 1	S-CM ST	UBBLE,	PRE-BOO				100			2.577						
2662 208 5881 1241 7122 168 135 0 100 1.33 0.64 5.39 5.47 67 118 936 1511 2447 53 264 75 78 2.72 0.78 1.90 2.05 1173 11 1762 1557 3319 90 183 86 70 2.29 0.78 2.55 2.57 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.43 3.55 1521 22 2745 1769 4514 88 296 108 74 2.46 1.19 2.84 2.84 2.84 3.55 3.57 3.57 3.57 3.57 3.57 3.57 3.57	11 JUNE	771																	
671 118 936 1511 2447 53 264 75 78 2.72 0.78 1.90 2.05 1173 11 1762 1557 3319 90 183 86 70 2.29 0.78 1.90 2.05 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.43 3.55 1521 22 2745 1769 4514 88 296 108 74 2.46 1.19 2.84 2.84 UBBLE ONCE; THEN BOOT CUT TO 8 CH 5737 29 17308 1080 18388 231 102 5 94 1.25 0.72 6.76 6.77	8 JULY	5348	3218	1033	2662	208	5881	1241	7122	168	135		. 20		. 22	77.0	. 30		
1173 11 1762 1511 2417 35 264 75 78 . 2.72 0.78 1.90 2.05 1521 65 2113 2357 4471 76 366 188 66 2.94 1.33 3.45 1521 22 2745 1769 4514 88 296 108 74 . 2.46 1.19 2.84 2.84 UBBLE ONCE, THEN BOOT CUT TO 8 CH 5737 29 17308 1080 18388 231 102 5 94 . 0.93 0.66 10.63 10.63 3240 18 8923 1568 10491 201 145 102 59 . 1.25 0.72 6.76 6.77	23 JULY	612	266	1392	177	118	920	1611	2776	200	200		001			0.04	7.39	2.47	0.00
1521 65 2113 2357 4471 76 366 188 66 . 2.99 0.78 2.55 2.57 1521 22 2745 1769 4514 88 296 108 74 . 2.46 1.19 2.84 2.84 2.84 3.55 3.55 3.55 3.55 3.55 3.55 3.55 3.5	12 AUG	1346	588	1566	1173	11	1769	1777	1667	200	507	22	9/		.72	0.78	1.90	2.05	0.15
1521 22 2745 1769 4514 88 296 108 74 . 2.46 1.19 2.84 2.84 UBBLE ONCE, THEN BOOT CUT TO 8 CH 5737 29 17308 1080 18388 231 102 5 94 . 0.93 0.66 10.63 10.63 3240 18 8923 1568 10491 201 145 102 59 . 1.25 0.72 6.76 6.77	1 CFDT	17.30	200	2000	2000	1:	7077	1337	3319	2		98	70		.29	0.78	2.55	2.57	0.01
1521 22 2745 1769 4514 88 296 108 74 . 2.46 1.19 2.84 2.84 UBBLE ONCE; THEN BOOT CUT TO 8 CH 5737 29 17308 1080 18338 231 102 5 94 . 0.93 0.66 10.63 10.63 3240 18 8923 1568 10491 201 145 102 59 . 1.25 0.72 6.76 6.77	Tage T	7430	266	5677	1751	65	2113	2357	4471	76		88	99		96.	1.33	3.63	3.55	0.12
TUBBLE ONCE, THEN BOOT CUT TO 8 CM 5737 29 17308 1080 18388 231 102 5 94 0.93 0.66 10.63 10.63 3240 18 8923 1568 10491 201 145 102 59 1.25 0.72 6.76 6.77	17 OCT	2073	1223	1747	1521	22	2745	1769	4514	88		80	74		94.	1.19	2.84	2.84	100
771 11440 11571 1051 5737 29 17308 1080 18388 231 102 5 94 0.93 0.66 10.63 10.63 6474 5683 1550 3240 18 8923 1568 10491 201 145 102 59 1.25 0.72 6.76 6.77	3T 10: 50	CA GROWTH	CUT TO	15-CM S	UBBLE		HEN BOOT		8 CM										
11440 11571 1051 5737 29 17308 1080 18388 231 102 5 94 0.93 0.66 10.63 10.63 6474 5683 1550 3240 18 8923 1568 10491 201 145 102 59 1.25 0.72 6.76 6.77	11 JUNE	771		1															
6474 5683 1550 3240 18 8923 1568 10491 201 145 102 59 , 1.25 0.72 6.76 6.77	19 .TIT.Y	11640	11571	1051	4727	200	17300	.000	.0000			• 1							
1250 3240 to 0923 1268 10491 201 145 102 59 , 1.25 0.72 6.76 6.77	7 SEPT	6474	2683	1001	22.00	200	2000	1000	10300	231		2	76		.93	99.0	10.63	10.63	0.00
	- 100	****	2002	ncct	3540	10	8373	1568	10491	201		05	59	. 1	.25	0.72	6.76	6.77	00.0

TABLE V (Continued)

DATE				2000	DOTAL DIS OUTETO	4000						1000			0000000			
DATE	COT VIELD.	ABOVE BI	MS BELOW	ABOVE BE	VES	AROVE.	STEMS + LEAVES AROVE RELOW	TIELD	PLANT		STEME		DRY	NITE	DOEN	LEA	LEAF AREA INDEX	DEX
	H2 SAMPLE	כמו	5		100	COT	CUI	CROUND		LIVE		LIVE		4	CUT	200	GROUND	CUT
		1	1 1	kg/ha	ha an		1	1	5	- 10/11	n/m2 -	1	1 1	1		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
MCT 11: 50-CM GROWTH CUT 15-CM STUBBLE ONCE, BOOT	-CM GROWTH	CUT 15	-CM STUI	BELE ONC	E, BOOT	CUT TO	00	CM ONCE, THEN	75 CM	CUT TO 15 CM	15 CM							
11 JUNE	743	133	753	1342	124	1475	877	2352	•	205	0	100	•	2.43	2.06	2.90	3.21	0.31
19 JULY	11440		•		•	•										•		
17 AUG	1961	1241	1611	1959	65	3200	1676	4876	103	328	124	72		2.49	1.34	3.59	3.71	0.12
9 SEPT	1397	441	1306	766	36	1435	1342	2777	72	301	75	79		2.44	1.39	1.78	1.82	0.04
19 oct	943	151	1618	736	72	886	1690	2576	20	296	280	52		2.33	1.24	1.30	1.47	0.16
MCT 12: 50-CM GROWTH		CUT TO 1	15-CM STUBBLE		TWICE, B	BOOT CUT	TO 8 CM	ONCE,	THEN 75	CM CUT	TO 15	5						
11 JUNE																		
18 THNE		30.00	1000									•	•		•	•		
2 ATIG		0171	1626	1207	. 60	19467	1660	26174	.776		- 1	. ;						
26 AUG		187	1667	1381	2 2 2	1862	1711	92767	407	101	113	7,2	6.10	10.0 20.0	0.37	6.03	6.12	0.03
22 SEPT	1748	206	1884	1216	29	1722	1912	3635	74	280	161	99	77.1	2.65	1.36	2.61	2.64	0.03 0.03
MGT 13: 50-CM GROWTH CUT TO 15-CM ST	HCM GROWTH	CUT TO	15-CH \$	STUBBLE		ONCE, EARLY BLOOM CUT		TO 8 CM ONCE,	ONCE, T	THEN 75	כא כמד	TO 15	5					
11 JUNE	777	•	•															
28 JULY											1000							
20 AUG	1394	535	1475	1503	54	2038	1528	3566	72	269	86	75		3.02	1.86	3.38	3.50	0.12
9 SEPT		624	1859	1428	36	2052	1894	3947	85	301	102	75	80.0	2.53	1.35	2.42	2.50	0.08
19 OCT		169	1952	933	86	1102	2038	3139	6.9	457	156	74		2.91	1.51	1.65	1.82	0.17
MGT 14: 50-CM GROWTH CUT TO 15-CM ST	-CM GROWTH	CUT TO	15-CH S	STUBBLE	ONCE, E	EARLY BLOOM CUT	10	TO 8 CM	ONCE, TI	THEN PRE-BOOT		CUT TO	CUT TO 15 CM					
11 JUNE	771	•	•	•	•		•	•	•		•	•						
Z8 JULY	13409	15769	1633	5145	0	20914	1633	22547	257	108	38	73	59.7	1.26		9.52	9.52	00.0
17 SEPT	6100	4248	2059	3043	57	7291	2117	9076	182	280	97	75	65.5	1.60	1.00	6.74	6.77	0.03
MGT 15: 50-CM GROWTH CUT TO 15-CM STUBBLE	HOW GROWTH	CUT TO	15-CH	STUBBLE	ONCE, E	EARLY BLOOM CUT		TO 8 CM ONCE,		THEN BOOT	COL	TO 8 CT	Z.					
11 JUNE	933	63	628	1227	174	1290	802	2002		210	0	100		2.55	2.06	2.64	3.07	0.43
28 JULY	13409	. 000			•:	24.70					.;	.;						
1230 77	2000	2009	1363	7047	=	0/6/	13/4	8844	717	183	6	74	67.4	1.11	0.93	2.04	5.04	0.00

TABLE VI

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT IVDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF CHOWMAKER 235 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

	LEAF AREA INDEX	0	1								7 0.05			3 0.00				8 0.00					0.05					0.00				The state of	0.00
	AR AREA						2.3	4.5	4.6	3,43	1.4		14.1	9.23	3.6		11.5	5.98	1.4			7.11	4.21	2.5		2.61	3.87	5.58	2.97	1.53		. 0	5.71
	AROUE	COL					5.43	4.51	4.58	3.40	1.42		14.19	9.23	3.61		11.54	5.98	1.40			7.14	4.19	2.49		2.56	3.81	5.58	2.90	1,33		0 40	5.66
TOTAT	NITROGEN OVE BELOW	CUT				2 63	000	1.93	0.69	1.04	0.75		1.39	0.58	0.63		0.83	0.64	0.80		N. Sec.	0.83	0.77	0.70		0.55	1.84	1.32	1 10	4.47		0.28	0.95
	12	CUT				2 88	2 44	54.7	2.45	1.96	1.75		1.45	1.16	1.28		1.09	1.23	1.81			1.89	1.40	1.91		2.71	2.75	2.03	2 28			1.06	1.71
TN-VITRO	DRY	-	2			80.5	21 6	0.70	63.4	72.6	6.10		59.1	68.3	6.99		67.5	49.2	70.4			59.6	66.4	14.6	-	200.7	60.07	75.7	63.4			71.8	67.7
		LIVE				100	70	3 7	9/	201	4		100	20	9		100	73	0/			100	78	28	00.	100	700	72	200			100	80
	STEMS	DEAD	n/m2 -			0	7		60	2 6	0		0	54	707		0	24 A	3			0	47	151	•	0	2	70	70			. 0	50
Carlo		LI	- n			65	136	103	707	107	770		97	129	101		86	187	107			707	165	700	20	161	151	183	102			156	187
	100000	HEIGHT	CM			85	124	100	700	77			235	140	740		262	777				200	180			700	124	92	84			197	157
	YIELD	GROUND	1 1 1			1945	4992	7827	3014	2447		7	20204	14/4/	2040		24646	2899	ייי זו ייי		19067	19671	1937		1869	3708	6523	4248	2296	TO 8 CM		13771	7898
	+ L	CUT				553	1143	1658	1597	1654			703	2045			1374	1763	THEN PRE-ROOT CITY	-	1665	2001	2730		470	617	1124	1780	1241	THEN PRE-BOOT CIT		2336	2354
SAMPLE	m w	CUT			0000	1392	3849	2727	2217	893			19301	3775		00000	9130	1136	IEN PRE-		11302	6030	1500		1399	3090	5399	2469	1055	EN PRE-		11435	822
MZ SA	BELOW	CUI	1 1 1			34	20	25	14	39			250	57		•	00	26	ONCE. T			36	65		20	24	0	25	18	ICE, TH		47	22
0.14 NZ	ABOVE BE	CUI	124	TUBBLE	1113	1070	1969	1672	1374	578		7750	4076	1582	BLE	6267	2899	598	UBBLE O		3771	2418	929	UBBLE	1062	1689	2526	1428	649	UBBLE OF		4198	621
	2	103		15-CM S	007	1000	TON	1633	1582	1615	BBLE	703	2350	1988	-CM STU	1376	1798	1737	15-CM S7		1665	1880	2666	CUT TO 8-CM ST	420	593	1124	1755	1223	8-CM ST		2289	1955
	ABOVE BE	1.		CUT TO	280	1880	1000	1022	843	316	-CM STU	11751	8295	2192	UT TO 8.	16926	6239	538		C. Water	7531	3612	570		337	1402	2873	1041	405	CUT TO		7237	201
ANDONE	YIELD,	יוב סעתונים		90-CM GROWTH CUT TO 15-CM S	1685	3118	1010	OTOT	2972	992	CUT TO 8	10172		3193	Y BLOOM C	15999		949	M GROWTH (1991	8034	5154	1148	CM GROWTH	1708	1999	3631	1622		CM GROWTH		7993 3278	
	DATE	1		MCI 2: 90-0	16 JUNE	5 JULY	20 1111	1700 000	25 AUG	22 SEPT	MGT 4: BOOT CUT TO 8-CM STUBBLE	S JULY	22 AUG	6 OCT	MGT 5: EARLY BLOOM CUT TO 8-CM STU	18 JULY	9 SEPT	6 OCT	MGT 8: 90-CM GROWTH CUT TO	16 JUNE	18 JULY	30 AUG	6 OCT	MGT 16: 90-CM	16 JUNE	S JULY	1 AUG	JO AUG	100	MGT 17: 90-CM	16 JUNE	26 JULY 30 AUG	7 OCT

TABLE VI (Continued)

	NDEX		0.00		0.00	
	ABOVE CROUNER		3.37		4.35 6.36 5.48	
	LEAF AREA INDEX ABOVE ABOVE BEI CIT GROUND CIT		3.33 7.93 4.11		6.28 6.36 5.48	
	CAL		1.90 0.81 0.62		2.05 1.20 0.70	
	TOTAL NITROGEN ABOVE BEL CUT		2.31		2.84 1.54 1.13	
	IN-VITRO TO DRY NITT MATTER ABOVE LIVE DIGEST, CUT	-	73.6 67.9 62.1		79.0	
	LIVE	1	100 90 67		100	
	STEMS	- n/m2 -	0 16 54		008	
(pa	LIVE	/u -	102 129 118		81 108 140	
TABLE VI (Continued)	PLANT HEIGHT	5	85 221 198		80 235 216	
VI (Co.	YIELD ABOVE GROUND	S CM	3086 16623 7183	8 CM	3602 10606 11535	
	LE STEMS + LEAVES ABOVE BELOW CUT CUT	CUT TO 8	538 1342 1826	STUBBLE ONCE, THEN BOOT CUT TO 8 CM	947 1274 2530	
	STEMS + ABOVE CUT	HEN BOOT	2547 15281 5357	HEN BOOT	2655 9332 9006	
	0.14 M ² SAMPLE LEAVES STI NOVE BELOW AB(JUT CUT C	NCE, TH	1103	ONCE, I	61	
	O.14 MZ LEAVES ABOVE BEI CUT CT	kg/ha TUBBLE ONC	1668 4140 1776	TUBBLE	1952 3035 2490	
	CTON	8-CM ST	509 1342 1816	15-CM	886 1274 2515	
	ABOVE BE	CUT TO	879 11141 3581	CUT TO	703 6297 6516	N. H.
	ABOVE CUT TIELD, M2 SAMPLE	M GROWTH	2313 9895 5241	M GROWTH	1636 12246 6848	
	DATE	MGT 18: 90-CM GROWTH CUT TO 8-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM	16 JUNE 1 AUG 20 SEPT	MGT 19: 90-CM GROWTH CUT TO	16 JUNE 29 JULY 20 SEPT	

TABLE VII

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF CHOWMAKER 235 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

	LEA	RATIO	DRY	DRY MATTER CO	NTRIBUTED	ED BY		PRIMARY CULM AND TILLER MERISTEMS	CULM AND		AXIL	LARY TII	AXILLARY TILLER MERISTEMS	ISTEMS	AXILI	AXILLARY TILLER ORIGINS	LER ORI	GINS
DATE	CUI	CUT CUT	STEMS	STEMS LEAVES	STEMS	STEMS LEAVES	MEAN HEIGHT1/	MIN. NUMBER HEIGHT	MIN. HEIGHT	MAX. HEIGHT	MEAN	NUMBER	MIN. HEIGHT	MAX.	MEAN	NIMBER	MIN. MAX.	MAX
					%		CH	n/m2		- CB -		n/m2		1	1 1 1	n/m2	1 1 1	C. W.
MGT 1: 50-CM	50-CM GROWTH CUT TO 15-CM STUBBLE	UT TO 1	S-CH STI	UBBLE														
	40.05	0.21	2.4	54.2	36.2	7.1	1.6	14.8	9.0	4.0		0						
18 JUNE	3.26				33.6	7.3	2.9	18.3		0.0	A. C. S. S. S.	000		The section		0.0		
28 JUNE	4.71	0.07			35.5	2.5	2	10.5	400	0	•	0.0				0.0		•
13 JULY	2.66			30.6	30 8	2	2 4	0.75		0 .		0.0				0:0		•
	3.27			28.1	200	107	0.0	75.0	7:0	24.5	0.3	1.5	0.3	0.3	5.5	1.5	4.1	6.
	10.46			300	1000		100	20.00	1.0	12.5	1.3	1.0	1.3	1.3	2.5	1.0	2.1	2.
	16.25			27.0	0.07	0.0	2.0	24.0	0.0	13.5	0.8	7.5	0.5	1.5	4.0	7.5	0.8	10.0
30 ATC	2 23			2002	1.00	7.7	6.7	14.0	0.2	7.5	0.3	2.0	0.3	0.3	3.0	2.0	2.6	3.6
17 SEPT	40.4			90 00	0000	7.7	0 1	13.5	0.0	11.3	2.0	7.0	9.0	5.0	4.5	7.0	1.5	7
14 OCT	7 75			0.77	2000	1.7	1:0	11.5	1.0	14.8	1.1	5.5	0.5	4.0	5.0	5.5	1.0	00
<	1:13	3.5	2.5	1.67	7.99	7.8	2.5	16.5	1.0	11.8	1.5	13.5	0.2	5.3	3.0	13.5	0.5	7
MCT 2: 90-CM	90-CM CROWTH CUT TO 15-CM STUBBLE	UT TO 1	S-CM STL	JBBLE														1
	3.27				30.5		3.6	18.0	0.1	16.9		0						
2 JULY	1.70	0.22	25.2		27.4		11.8	23.0	0.2	1 27	1.0					0.0		
21 JULY	1.99	0.07			40.0		7.1	25.5	2	36.00	9 6	7.0	0.0	1.5	7.0	1.0	2.5	10.
13 AUG	1.65	0.02	21.5		42.8		12.4	17.5	100	7.0.0	L. 7	0.0	5.0	2.0	0.0	0.9	1.2	80
3 SEPT	2.47	0.03	15.3		45.2		10	21.5		27. 0	T.0	0.0	1:1	2.5	4.5	3.5	1.5	5
19 OCT	1.92	0.01	20.7	36.8	41.7	0.7	17.0	31.0	200	24.5	7.7	19.0	0.5	10.8	0.9	19.0	0.5	14.8
MCT 3. BDF-BOM CITY TO	THE CITY OF		Comment		7			200	7.0	200	7.1	2.6	0.3	26.3	4.0	0.6	1.0	00
NE JE ENE-D	100 100		TO-CH SINBBUR															
30 JUNE	1.01	90.0		42.8	14.1		35.2	13.5	0.3	03.3		0						
17 AUG	0.72	0.02	43.3		25.5		15.4	22.0	200	141 1	000					0.0		•
28 SEPT	1.19	0.02			60.0	1.0	21.8	21.5	0.0	80.5	19.2	13.0	10.4	135.2	0.6	12.5	m c	17.0
MGT 4: BOOT C	BOOT CUT TO 8-CM STUBBLE	M STUB	SLE													2.0	0.0	77.
19 JULY 9 SEPT	0.46	0.00	63.8	29.2	6.6	0.3 1	143.8	9.3	42.5	221.5	. 00	0.0	. ,			0.0		
MGT 5: EARLY	EARLY BLOOM CUT	r 70 8-CM	CM STUBBLE	ILE								:	1.01	7.607		;	1.0	20
28 JULY	0.33	0.00		23.6	6.3	100	15.4	0.6	138.7	297.8		0						
28 SEPT	0.44	0.01	62.1	26.9	11.0	0.1	89.4	15.0	0.8	204.5	27.8	2.5	0.8	80.5	2.0	2.5	1.0	2.8

TABLE VII (Continued)

7447		MALLO	DRY M	Ö	ONTRIBUTED BY	ID BY	32	TILLER MERISTEMS	CRISTEMS		AXTE	ARY TIL	AXILIARY TILLER MERISTEMS	STEMS	AXCOM	LARY TT	AXTITARY TITLER ORIGINS	STRE
DAIE	ABOVE	BELOW	STENS	STEMS LEAVES	STEMS I	LEAVES	MEAN HEIGHT1/	MIN. NUMBER HEIGHT	MIN. HEIGHT	MAX. HEIGHT	MEAN	NUMBER	MIN. HEIGHT	MAX.	MEAN	MEAN HETCHT NIMBER	MIN. MAX.	MAX.
			1 1		2	1 1	Cm	n/m2		- cm -		n/m2		- CB		n/m2		
MGT 6: 50-CM	50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	T TO 15	-CM STUI	BELE ONCE		3 M3-0	THEN 90-CM CUT TO 15	₩								j		
11 JUNE																		
24 JUNE	2.92	01.0	15.0	42 6	27 1	3 6	. 11					•						
	1 7.1	24.0		0.00	11/0	3.0	0.0	19.5	0.4	22.0		0.0		St. A. S.		0.0		
	10.1	0.14	20.07	33.5	34.7	2.0	7.5	26.7	0.2	33.7	0.5	3.0	0.3	0.8	2.0	30	2 2	0 4
	3.45	0.04	12.7	26.8	6.14	1.8	8.8	26.0	0.1	42.3	3.1	12.0	200	12.6		000	7:1	0.0
26 AUG	2.88	90.0	11.8	33.7	51.1	2.3	5.2	25.5	0.2	10.6	3	200	200	17.0	0.0	12.0	1.5	12.3
28 SEPT	1.94	0.01	19.8	38.5	41.0	0.7	14.4	22.5	0.3	47.3	6.5	0.77	9.0	20.07	2.5	12.0	0.5	9.0
MGT 7: 50-CM	SO-CM GROWTH CUT	T TO 15-	-CM STUB	TO 15-CM STUBBLE ONCE.	THEN	90 CM T	8	ONCE. THEN SO	EN 50 CM	TO 15	CA WATER	WILL DE	2.5		2.	7.5	2.0	0./
11 71111										2		- A MENT	21 15	5 0				
TT CONE			10 mm					•										
Z4 JUNE											The same						•	
30 JUNE	2.59	0.14	14.5	38.2	41.6	5.7	3.0	26.0	0.2	12.8	0.5	0	00		. 4			
13 JULY	5.24	0.25	7.1	35.9	46.5	10.6	2.0	41.5	0		000	3.5		7.	9.0	0.5	0.0	10.0
30 JULY	1.26	0.04	39.8	29.6	47.4	2	2	14.4		20.30			2.0	1.8	2.0	1.5	0.8	2.8
20 AUG	3.49	0.01	11.1	38.5	9 09	000		20.00	200	20.07	4.4	3.0	0.5	N. W.	4.0	3.0	0.8	80
3 SEPT	2.11	000	14.4	20.00	20.00		7.0.	27.5	0.3	13.1	1.3	3.5	1.0	1.8	1.0	3.5	0.8	1.9
	1000	2000	70.00	1.67	0000	4.0	11.4	16.5	8.0	24.3	5.9	6.5	1.5	13.5	3.0	6.5	0.8	7.3
	4.30	5.0	11.3	24.5	27.7	5.4	6.9	23.5	0.2	41.5	1.8	8.5	0.5	5.0	3.5	8.5	0.5	00
MGT 8: 90-CM GROWTH CUT TO 15-CM STUBBLE ONCI	SROWTH CU	T TO 15-	-CM STUB	BLE ONCE,	, THEN P	THEN PRE-BOOT CUT	T CUT TO	15 CM										
16 JUNE																		
21 JULY	0.53	0.04	53.5	28.4	17.4		87 5	30.		. 001	•					•		
1 SEPT	99.0	0.02	43.2	28.4	27.6		0.04	150.0		200.0		0.0				0.0		
	2 00	700		24.6	27.3	100	200	200	0.0	7.077	25.6	10.0	. m	119.3	7.0	10.0	2.7	11.0
	60.0	*	2.5	74.0	1.10		7.7	32.5		23.3	2.0	24.0	0.1	13.0	5.5	24.0	0.5	10.3
MGT 9: 50-CM	50-CM GROWTH CUT TO 15-CM STUBBLE, PRI	T TO 15-	-CM STUB	BLE, PRE-	-BOOT CUT TO		15 CM, 50	CM CUT	TO 15 CM,	EACH	ONCE, THEN	75 CM C	CUT TO 15	S G				
8 JULY	0.82	0.20	44.8	37.2	15.0	3.0	32.0	12.5		103.0			•	•				
23 JULY	2.67	0.08	10.8	27.4	57.0		3.00	24.5		20.5		20.0				0.0		
12 AUG	2.00	0.01	17.8	35.8	1 99		0	17.0			7:1	10.5	6.0	5.7	4.5	10.5	1.2	14.8
1 SEPT	2.61	200	13.9	34.5	20.7		1.0	27.0		20.00	9.0	3.5	1.3	26.0	2.0	3.5	1.3	3,3
	1.31	0.02	27.0	35.1	37.2	9.0	18.5	24.0	2.0	24.5	H	26.0	0.5	16.3	4.5	26.0	9.0	6.6
:	SO-CM GROWTH CUT TO 1-5-CM STUBBLE ON	TT TO 15	-CM ST	BRLE ONCE	THEN.		0	2		03.0	14.9	18.0	7.0	66.3	4.5	18.0	1.8	10.9
		-	-	TOWN THE	Mant 6		0	Ę										
11 JUNE					•		•	•										
TA DOLY	0.50	0.05	62.8	31.3	5.7		114.8	9.5	3.3	198.3		0.0				0.0		
7 SEPT	0.57	0.01	54.2	30.9	14.8	0.2	80.5	13.5		191.7	85.0	7.0	17.6	194 0		2 0		
											****		>	TOTAL	7.5	2.7	1.5	20.00

TABLE VII (Continued)

	RATIO ABOUT BETOU	RATIO	DRY N	DRY MATTER CONTR	NTRIBUTED BY	D BY	100	PRIMARY CULM AND TILLER MERISTEMS	RISTEMS		AXIL	AXILLARY TILLER MERISTEMS	LER MERI	STEMS	AXILL	ARY TIL	AXILLARY TILLER ORIGINS	SN
DATE	CUT	CUT	STEMS	STEMS LEAVES	STEMS LEAVES		MEAN HEIGHTI/	NUMBER	MIN. HEIGHT	MAX. HEISHT	MEAN	NUMBER	MIN. HEIGHT	MAX.	MEAN	NIMBER	MIN.	MAX.
			1	1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1	cm	n/m2	1 4 8	- cm	1 1 1 1	n/m2		- 60		n/m2		
MGT 11: 50-CM GROWTH CUT 15-CM STUBBLE ONCE, BOOT CUT TO 8	M GROWTH C	UT 15-C	M STUBBI	LE ONCE,	BOOT CUT		CM ONCE,	1000	THEN 75 CM CUT	TO 15 CM								
11 JUNE	14.03	0.17	5.0	57.3	32.1	5.6	1.8	19.0	2	5 7		0						
19 JULY		Committee of the		The Lates				2				0.0				0.0	1010	
17 AUG	1.57	0.03	25.3	39.8	33.6		12.0	30.6										•
9 SEPT	2.27	0.03	15.8	36.0	8 99	7 .	0.0	000	7.0	7.50	10.0	11.0	0.3	58.6	2.0	11.0	0.0	'n
19 OCT	5.06	0.04	5.6	27.9	63.4	3.0	0 00	27.5	0.5	11.0	70.4	18.0	0.1	23.0	2.0	18.0	0.8	6.3
MGT 12: 50-CM GROWTH CUT TO 15-CM STUBBLE TWICE.	M GROWTH C	UT TO 1	S-CM STI	IBBLE TWI	CE. BOOT	CG	TO 8 CM O	ONCE, THEN		CIT TO	15 00				0.0	13.0	4.0	,
11 JUNE																		
18 TINT					•	•	•	•	•	•	•	•						
2000							•	•	•	•		•				Contraction of the Contraction o	1000	
2 AUG	1.16	0.05	44.6	27.8	7.3	0.0	151.3	8.0	10.5	242.6		0						•
26 AUG	3.22	0.04	12.6	38.2	47.1	2.0	5.0	24.0		17.7	4.2	14.0		16.3		200		
22 SEPT	2.57	0.01	13.7	33.5	52.0	0.8	9.1	26.0	0.5	29.0	6.3	21.5	0.3	27.8	3.5	21.5	900	20 10
MCT 13: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	M. GROWTH C	UT TO 1.	5-CM STU	IBBLE ONC.	E, EARLY	BLOOM	CUT TO	8 CM ONC	CM ONCE, THEN	75 CM CUT	TO 15	3						
11 JUNE																		
28 JULY						N. S. S. S. S.	The state of the state of											•
20 AUG	2.92	0.03	16.8	42.3	4.14	3 1		26.0									· 5 · 6	
9 SEPT	2.50	0.02	15.3	36.0	47 g	0		0.00	7:0	10.0	5.5	10.5	0.3	13.5	2.5	10.5	1.0	9
19 OCT	6.01	0.04	5.3	29.7	62.2	200	6.5	42.5	7.0	18.3	 	9.0	0.0	19.1	2.5	9.0	0.5	4.3
MGT 14: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE.	M GROWTH C	UT TO 1	F-CH STU	IBBLE ONC	E. EARLY		CIT TO	R CM ONCE	MARIA M		0.1		7.0	13.0	3.5	32.5	9.0	6
11 JUNE										TOOT-TWI	201 100	E CT						
28 JULY	0.33	00.00	8 69	22.0	7.3		0 070	.0.0.				•			10 Th		No. of Street,	•
17 SEPT	0.73	0.02	44.8	32.6	22.0		48.1	36.0	0.0	283.8		0.0				0.0		
							+ + + + + + + + + + + + + + + + + + + +			0.161	32.0	12.0	8.0	132.8	3.5	12.0	8.0	6.5
MGT 15: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	M GROWTH C	UT TO 1.	5-CM STL	BBLE ONC	E, EARLY		BLOOM CUT TO 8	CM ONCE,	E, THEN	THEN BOOT CUT	TO 8 CM							
11 JUNE 28 JULY	22.78	0.37	2.8	9.09	28.2	4.6	1.7	19.5	0.5	4.9		0.0				0.0		•
22 SEPT	0.50	0.01	\$6.5	27.9	15.5	0.1	57.6	17.0		916.	. 07							
			-		1000	4.0	2007	0017		C.O.	800	7 - 11	K	7 1 20 2	4	C P	0	0

TABLE VIII

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF CHOWMAKER 235 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

4	MAX.					2.5	2.5	17.4			2.8				8.9	12.0			3.8	12.0	13.3			12.0	7.7	7.5			2.0	12.7	3.3
ORTGIN	MIN. MAX.	CR						2.8			2.8				2.1					12.0						1.3			2.0		
AXTITARY TITLER ORTGINS				0	1.0	1.4	2.6	16.0		0.0	0.5	0.0		0.0	4.5	7.7			1.5	1.3	8.0		0.0	1.3	1.7	2.5			0.5	4.7	2.5
AXTITA	MEAN HETGHT NUMBER				7.8	. «	200	9.5			3.0				4.5	7.3			23.0	12.3	7.5			10.01	6.5	0.0			2.0	9.0	2.5
TENS	1.1				2 0	28.0	36.1	22.7			131.2	•			200.3	2.0			24.0	9.0	15.5			8.6	36.1	31.0			101.0	64.8	6.3
TR MERIS	MIN.	1			, ,	200	0 00	2.5			131.2				1.4	8.0			21.0	9.0	2.5		•	8.9	21.1	6.0			101.0	24.5	8.0
URY TILLI	NUMBER			0	1.1	2 2	200	16.0		0.0	0.5	0.0		0.0	00 1	7.7			1.5	1.3	8.0		0.0	1.3	1.7	2.0			0.5	4.7	2.5
AXELET	MEAN MINE MIN. MAX HEIGHT NUMBER HEIGHT HEIG	28				17.2	16.2	7.2			131.2				92.1	1.4			22.5	0.8	7.2			8.3	28.9	2.8			101.0	41.4	3.1
	MAX.	00 -		16.0	70.4	42.3	200	30.3		171.0	179.1	105.5		279.8	139.4	13.2			164.0	141.2	35.0		13.3	42.1	75.9	29.8			166.8	93.9	24.3
JLM AND RISTEMS	MIN.	1 1		2.3	1.6	8.0	0.5	5.3		116.3	35.2	3.8		113.9	23.3	9.0			14.8	0.7	4.0		2.3	0.7	1.2	3.0			0.3	0.5	1.0
PRIMARY CULM AND TILLER MERISTEMS	MIN. NUMBER HEIGHT	n/m2		6.0	12.7	17.0	21.5	21.0		0.6	12.0	14.0		8.0	8.0	17.3	15 CM		9.5	15.3	17.5		6.5	15.0	14.0	9.5	8 CH		14.5	17.3	9.0
z i	MEAN HEIGHTI/	COM		8.3	31.1	22.1	14.6	15.7		44.6	15.0	35.0		99.5	73.9	3.00	CUT TO		97.6	53.1	14.6		8.1	16.2	30.8	12.3	CUT TO		75.6	43.5	8.7
NTRIBUTED BY	STEMS LEAVES H	1						63.0 1.6		0.0	0.1	34.0 1.0		0.0	16.4 0.0	1.0	THEN PRE-BOOT CUT			23.9 0.4						52.5 0.6	544		16.5 0.3	30.3 0.8	
DRY MATTER CONTR	183	2	BLE	57.0				22.8				27.0	EQ.	25.8		20.5					21.8	BLE				28.6					21.9
DRY M	STEMS LEAV		-CM STUB	14.4	37.8	24.1	22.1	12.6	3	58.5	56.6	38.0	A STUBBL	8.89	57.0	17.9	-CM STUB		58.0	45.8	13.5	-CM STUB	18.5	36.9	42.6	18.2	-CM STUB		52.7	37.0	7.0
STEM	BELOW		T TO 15-	0.11	0.04	0.01	0.01	0.05	M STUBBI	0.00	0.01	0.02	TO 8-CI	0.00	0.00	0.02	T TO 15		0.00	0.01	0.05	TO S.	0.12	0.03	0.00	0.01	UT TO 8		0.05	0.02	0.03
LEAF/STEM RATIO	ABOVE BELOW		90-CM GROWTH CUT TO 15-CM STUBBLE	3.97	1.05	1.59	1.64	5.09	TT TO 8-C	0.65	67.0	0.71	SLOOM CUT	0.37	0.46	1.27	ROWTH CU		0.50	0.67	1.62	GROWTH C	3.29	1.29	1.02	1.59	GROWTH C		0.58	0.89	3.16
	DATE		MGT 2: 90-CM G	16 JUNE	S JULY	29 JULY	25 AUG	22 SEPT	MGT 4: BOOT CUT TO 8-CM STUBBLE	S JULY	22 AUG	6 OCT	MGT 5: EARLY BLOOM CUT TO 8-CM STUBBLE	18 JULY	9 SEPT	6 OCT	MGT 8: 90-CM GROWTH CUT TO 15-CM STUBBLE ONCE	16 JUNE	18 JULY	30 AUG	6 OCT	MGT 16: 90-CM GROWTH CUT TO 8-CM STUBBLE	16 JUNE	S JULY	1 AUG	30 AUG	MGT 17: 90-CM GROWTH CUT TO 8-CM STUBBLE ONCE	16 JUNE	26 JULY	30 AUG	7 OCT

TABLE VIII (Continued)

IGINS	MIN. MAX.	CH -				24.0				13.5	
LLER OR					3 46	2.5				000	
LARY TI	MEAN HEIGHT NUMBER	n/m2				2.0	-		2.5	2.5	
AKIT	MEAN				25.0	29.0				12.5	
STEMS	MAX. HEIGHT	- CH			20.2	12.0			. 26	92.3	
ER MERIS	MIN. HEIGHT				20.2	3.5			36.0	0.5	
AXILLARY TILLER MERISTEMS	NUMBER 1	n/m2 -		0.0	0.5	1.0		0.0	200	2.5	
AXILLA	MEAN HEIGHT N				20.2	7.8			35.8	26.9	
	HEIGHT H	- CH		7.0		145.0		3,1		193.5	
0 00		1 1			14.8 19			1.8		0.3 19	
PRIMARY CULM AND TILLER MERISTEMS	MBER HE	n/m2 -			12.0 1					13.0 0	
PRIN	HT1/ NO		2 8 CM				TO 8 CM				
BY	ES HEIG	ES	COT I	0.01 6.0		0.1 67	T CUT	1.7 13.		0.1 86.7	
RIBUTED I	STENS LEAVES HEIGHT! NUMBER HEIGHT		90-CM GROWTH CUT TO 8-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM		8.4 0	25.1 0	THEN BO			23.3 0,	
8	ES	2	E ONCE,			25.6	ILE ONCE,	54.2			
DRY MAT	STEMS LEAV	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	M STUBB			49.1	CM STUBI		59.4 2		
/STEM			T TO 8-(0.00	T TO 15-			0.00	
RATIO AROVE RETO	100		KOWIH CU			0.52	ROWTH CU		0.48		
	DATE	0.00	10 TO: 30-CM C	16 JUNE	1 AUG	40 SEFT	MCT 19: 90-CM GROWTH CUT TO 15-CM STUBBLE ONCE, THEN BOOT CUT TO 8	16 JUNE	ZA POLY	20 SEPT	

TABLE IX

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT FYDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF MILLHY 99 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

100 81.9 2.23 100 88.5 2.47 84 82.4 2.16 69 81.2 1.86 64 81.9 2.02 64 81.9 2.02 64 83.0 2.46 42 84.2 3.27 47 2.67	100 81.9 2.23 100 68.5 2.47 84 82.4 2.16 69 81.2 1.86 64 81.9 2.02 64 81.9 2.02 64 81.9 2.02 64 81.9 2.02 62 84.2 3.27 47 2.67	100 81.9 2.23 100 81.9 2.23 100 68.5 2.47 84 82.4 2.16 69 81.2 1.86 64 81.9 2.02 62 83.0 2.02 62 84.2 3.27 47 2.67 48 67.5 3.54	100 80.4 1.97 100 80.4 1.97 100 80.4 1.97 100 80.4 1.97	100 81.9 2.23 100 81.9 2.23 100 88.5 2.47 84 82.4 2.16 69 81.2 1.86 64 81.9 2.02 62 83.0 2.02 62 84.2 3.27 47 47 67.5 3.54 100 80.4 1.97 79 78.2 1.60 56 81.2 2.67	81.9 2.23 68.5 2.47 82.4 2.16 81.2 1.86 81.9 2.02 83.0 2.46 84.2 3.27 67.5 3.54 67.5 3.54 80.4 1.97 78.2 1.60 81.3 2.51 73.9 2.08	B1.9 2.23 68.5 2.47 81.9 2.23 68.5 2.47 81.2 1.86 81.9 2.02 81.9 2.02 84.2 3.27 67.5 3.54 80.4 1.97 78.2 1.60 81.5 2.51 73.9 2.08	81.9 2.23 68.9 2.45 81.9 2.02 81.9 2.02 81.9 2.02 81.9 2.02 83.0 2.46 84.2 3.27 67.5 3.54 67.5 3.54 80.4 1.97 78.2 1.60 81.5 2.51 73.9 2.08	2.23 2.47 2.47 2.46 2.46 3.27 2.67 3.27 2.67 3.27 3.27 3.27 3.27 3.27 3.27 3.27 3.2	2.23 2.47 2.47 2.46 2.46 3.27 3.27 3.54 1.97 1.97 1.58 2.63 2.63 2.63 2.63 2.63 2.63 2.63 2.63	2.23 2.24 2.45 2.67 2.02 2.65 3.24 1.97 1.97 1.98 1.75 1.38 3.38 3.38 3.38			
100 100 100 84 69 64 62 42	100 100 100 84 64 62 64 64 64 64 64 64 64 64 64 64 64 64 64	100 100 100 64 64 47 47 47 47 47	100 100 84,8 64,2 47,4 47,4 48,8 100	100 100 100 69 64 64 67 79 79 84 84 84 84 84 84 84 84 84 84 84 84 84				67.52 67.52 68.59 67.50	ו פטאטסטט ט אטטפ			เ ผลผลาผลตล คาลล คาลลล คาลล	2.22 2.25 2.267 2.
					100 100 100 64 64 64 64 64 67 67 68 68 68 68 68 68 68 68 68 68 68 68 68	0040407018 0098			73 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	88 88.15.5 88 11.92.5 88 11.92.5 73.5 73.5 73.5 73.5 73.5 73.5 73.5 73	88 88 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		t and
	0404141	04041010	5274665900	2231840	23 4 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0				100 100 100 100 100 100 48 47 47 48 48 47 48 47 48 47 48 47 47 48 47 48 47 48 47 48 47 48 47 48 47 48 48 48 48 48 48 48 48 48 48 48 48 48	100 100 84 65 64 64 65 65 67 70 70 62 64 70 62 64 70 62 64 70 70 70 70 70 70 70 70 70 70 70 70 70	100 100 100 100 100 100 100 100 100 100	100 81.9 84 82.4 64 81.9 64 81.2 62 83.0 42 84.2 47 47 5 100 80.4 100 80.4 100 80.4 100 72.5 100 72.5 100 72.5 100 72.5 100 72.5 100 72.5 100 72.5 100 72.5 100 72.5 100 72.5	100 81.9 84 82.4 64 81.2 64 81.2 62 83.0 42 84.2 47 84.2 48 67.5 56 81.5 79 78.2 100 80.4 100 77.5 56 73.9 57 78.2 58 81.5 58 81.5
441 463 479 328 291 441 258	441 463 479 328 291 441 387 258 248	441 463 479 328 291 441 387 258 268	441 463 479 328 328 291 441 441 387 258 268 481 481	441 463 479 328 291 441 441 441 441 441 441 441 441 441 4		441 0 463 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	441 0 463 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	441 0 463 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	441 0 463 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	441 0 463 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	441 0 463 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	441 0 463 0 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1479 91 1499 91 14	441 0 463 0 1479 91 1479 91 1471 161 161 161 161 161 161 161 161 161 1
3267 2418 2418 2601 2422 2038 3810	4 3267 66 1 2289 53 1 2418 52 1 2601 50 7 2422 51 2 2038 50 0 1514 46 6 2074 33	2289 2418 2418 2601 2422 2038 3810 1514 2074	3267 2289 2418 2601 2422 2603 3810 1514 2074 5827	2289 2418 2418 2601 2422 2038 3810 1514 2074 2074 4883	2289 2418 2418 2601 2422 2038 3810 1514 2074 6975 4883	2289 2418 2601 2422 2601 2422 2038 3810 1514 2074 6975 4883 4413	3267 2289 2418 2418 2601 2422 2038 3810 1314 2074 4883 4413 4413 4444	2289 2418 2418 2422 2422 2038 3810 1514 2074 2074 4413 4413 4414 4105	2289 2418 2418 2422 2423 2423 2424 2038 3810 1514 2074 4833 4413 4413 4413 3129	2289 2418 2418 2422 2422 2038 3810 1514 2074 4883 4413 4414 4105 2418 3129	3267 2418 2418 2422 2422 2601 2038 3810 1514 4883 4413 4413 4413 4413 4414 4115 24105 24105 24105 24105 24105	2289 2418 2418 2611 2422 2038 3810 1514 2074 4413 4413 4444 4444 4413 4444 4105 4444 4105 2418 3129 3129 3129 3129 3129	3267 2418 2418 2422 2422 2038 3810 1514 2074 4413 4413 4414 4413 4414 4105 24105 24105 24105 11537 11537 2931 1873
1087 1311 850 1751 850 1751 814 1607 545 1493 1148 2560 344 1160 1	1010 1087 1087 1331 850 1751 814 1607 545 1493 1148 2662 344 1170 538 1536	1087 1311 850 1751 814 1607 845 1493 1148 2662 344 1170 1536	1087 1311 850 1751 814 1607 545 1493 1148 2662 344 1170 538 1536 4121 1705 4628	1087 1331 850 1731 841 1607 545 1493 1148 2662 344 1170 538 1536 4121 1705 4628 2347 2156 2727	1087 1311 850 1751 814 1607 845 1493 1148 2662 344 1170 136 4121 1705 4628 2347 2583 1830 4	1087 1311 850 1751 814 1607 545 1493 1148 2662 344 1170 538 1536 4121 1705 4628 2347 2156 2727 2156 2727 2583 1830	1010 1087 1311 850 1751 814 1607 545 1493 1148 2662 344 1170 538 1536 4121 1705 4628 2347 2156 2727 2156 2727 2583 1830 6439 1378	1010 1087 1087 1087 118 1148 1148 1148 1160 1148 1100 1148 1100 1	1015 1087 1087 1087 1087 1148 1148 1148 1148 11607 1148 11602 11602 11602 11602 11603 11705	1010 1011 850 814 1148 1148 2662 344 1170 538 1170 4121 1705 4628 2727 2156 2727 2583 1830 6439 1378 6439 1378 6439 1378 1801 2055 1801 2055 1801 2055 1805 2056 2057 2056 2057 2056 2057 2057 2056 2057 2056 2057 2057 2056 2057 2057 2056 2057 2056 2057 2057 2057 2056 2057	1087 1311 850 1751 814 1607 545 1493 1148 2662 344 1170 538 1536 4628 2347 2156 2727 2156 2727 2157 1966 1055 2074	1010 1011 1011 1011 1014	1087 1371 850 1751 814 1607 545 1493 1148 2662 344 1170 538 1536 4628 2347 2156 2727 2156 2727 2839 2055 1801 2303 452 1966 1055 2074 1058 1152 1033 1304 1
700 660 172 452 136 868 122 251 50	700 452 660 172 452 136 868 122 251 50 215 65	5 660 172 6 660 172 6 452 136 9 251 50 9 251 65 STUBBLE	700 452 660 172 868 122 251 50 1 215 65 STUBBLE 1 2894 294	700 452 660 172 660 172 868 122 9 251 50 215 65 STUBBLE 1 2894 294 6 1432 222	700 452 660 172 868 122 251 50 1 215 65 STUBBLE 1 2894 294 1 1432 222 1 1213 129	9 700 452 5 660 172 6 868 122 9 251 50 1 215 65 STUBBLE 1 2894 294 5 2339 391 4 1432 222 1 1213 129 8BLE	700 452 660 172 868 122 3 868 122 1 215 65 STUBBLE 65 1 2339 391 4 1432 222 1 1213 129 8BLE 186 9 1320 148	700 452 660 172 868 122 3 868 122 1 215 65 STUBBLE 1 2339 391 4 1432 222 1 1213 129 8BLE 8 1320 148 4 1428 129	700 452 660 172 700 172 868 136 1 215 65 870BBLE 870BBLE 1 2894 294 1 1432 222 1 1213 129 1524 206 4 1432 222 1 1213 129 1524 206 9 3320 148 9 1524 206 9 1524 206	99 700 452 56 452 136 56 452 136 10 868 122 11 251 50 11 2894 294 14 STUBBLE 55 239 391 54 1432 222 55 239 391 1 1213 129 1 1213 1213 129 1 1213 129	99 700 452 56 452 136 660 172 19 251 50 11 215 65 11 2894 294 11 2894 294 12 2339 391 14 1432 222 15 2339 391 16 123 129 17 123 129 18 129 19 129	99 700 452 15 660 172 16 868 122 19 251 50 11 2894 294 11 2894 294 11 2894 294 14 1432 222 15 2339 391 16 1213 129 17 1428 129 18 1524 206 19 1524 206 10 16 16 16 3 10 17 18 3 10 18 18 3	99 700 452 56 452 136 660 172 68 88 122 19 251 50 71 215 65 71 218 65 71 218 122 72 2339 391 74 1432 222 74 1432 222 74 1432 222 74 1428 129 74 1428 129 75 234 93 76 1524 206 77 1428 129 78 1524 206 78 1524 2
1435 1356 2540 1119	1435 1356 2540 1119 1471	STES	1435 1356 2540 1119 1471 0 15-CM STI	22001 124:	SSC 1	STT STT	STT. STT. 11	STT. STT. 11	STT STT	35 56 40 11 11 11 11 11 11 11 12 13 14 14 14 13 14 14 14 14 14 16 16 16 16 16 16 16 16 16 16 16 16 16	S S S S S S S S S S S S S S S S S S S	35 566 71 71 71 71 72 73 74 74 74 74 75 75 75 75 75 76 76 76 86	35 566 666 666 855 855 855 856 856 857 873 873 873 874 875 875 877 877
1356 452 136 545 1 2540 868 122 1148 2 1119 251 50 344 1	1356 452 136 545 12560 868 122 1148 1119 251 50 344 1171 215 65 538	5 452 136 545 1 0 868 122 1148 2 9 251 50 344 1 1 215 65 538 3 STUBBLE	5 452 136 545 1 0 868 122 1148 1 1 215 50 344 1 1 215 65 538 1 STUBBLE 594 4121 1 2 334 391 4628 1	5 452 136 545 0 868 122 1148 1 215 50 344 215 65 538 STUBBLE 1 2894 294 4121 2 2339 391 4628 4 1432 222 2156	5 452 136 545 1 0 868 122 1148 1 1 215 50 344 1 1 215 65 538 1 STUBBLE 294 4121 1 5 2339 391 4628 1 4 1432 222 2156 1 1 1213 129 2583 1 BRIE	5 452 136 545 0 868 122 1148 1 215 50 344 1 215 65 538 STUBBLE 1 2894 294 4121 5 2339 391 4628 4 1432 222 2156 1 1213 129 2583 BBLE	5 452 136 545 1 0 868 122 1148 1 1 215 55 34 1 STUBBLE 55 538 1 1 2894 294 4121 1 2 233 322 225 1 1 1213 129 2583 1 1 1213 129 2583 1 1 1213 129 2583 1 1 1214 206 2390 1	5 452 136 545 1 9 868 122 1148 1 1 215 55 34 1 STUBBLE 55 538 1 1 2894 294 4121 1 1 2894 294 4121 1 1 1213 129 2583 1 1 1213 129 2583 1 1 1213 129 2583 1 1 1214 206 2390 1 4 1428 129 1801	5 452 136 545 9 251 50 344 1 215 65 538 STUBBLE 1 2894 294 4121 5 2339 391 4628 4 1432 222 2156 1 1213 129 2583 BBLE 9 3320 148 6439 9 1524 206 2390 4 1428 129 1801 5 2390 5 2390 6 1524 206 2390 6 1524 206 2390 7 1428 129 1801 7 2583 8 3320 148 6439 8 3320 148 6439 8 352 108 1055	56 452 136 545 10 868 122 1148 11 215 55 344 1 215 65 538 1 8TUBBLE 294 4121 11 2894 294 4121 12 2339 391 4628 14 1428 129 2583 19 1213 129 2583 10 1224 206 2390 14 1428 129 1801 17 294 93 452 18 10 10 10 10 10 10 10 10 10 10 10 10 10	56 452 136 545 1 10 868 122 1148 2 11 251 50 344 1 11 215 65 538 1 11 239 391 4628 2 55 239 391 4628 2 14 1213 129 2583 1 19BLZ 29 3320 148 6439 1 49 1524 206 2390 2 49 1524 206 2390 2 40 1524 1801 2 41 4140 163 10283 1 41 4140 163 10283 1	56 452 136 545 1 10 868 122 1148 2 11 251 50 344 1 12 251 55 34 1 14 STUBBLE 294 4121 1 15 239 391 4628 2 16 1432 222 2156 2 17 1213 129 2583 1 18BLE 29 320 148 6439 1 19 1524 206 2390 2 17 1428 129 1801 2 18 124 206 2390 2 18 1428 129 1801 2 18 140 163 10283 1 14 1440 163 10283 1 15 119 39 1780 1 15 119 39 1780 1 15 119 39 1780 1 16 119 39 1780 1	56 452 136 545 1 10 868 122 1148 2 11 215 55 344 1 12 215 65 538 1 1 2894 294 4121 1 1 2894 294 4121 1 2 2339 391 4628 2 24 1432 222 2156 2 31 1213 129 2583 1 1 1213 129 2583 1 1 1213 129 2583 1 1 1213 129 2583 1 1 1213 129 1801 1 2 124 126 139 1 2 126 2390 2 3 320 148 6439 1 3 129 1801 2 4 4428 129 1801 2 5 553 108 1055 2 6 553 108 1055 2 8 567 42 1392 1 8 567 42 1392 1 8 567 42 1392 1
251 50 344 1170 1514	251 50 344 1170 1514 215 65 538 1536 2074	9 251 50 344 1170 1514 1 215 65 538 1536 2074 STUBBLE	STATE OF THE STATE	STUBBLE 122 1140 1200 3010 1514 1170 1514 1170 1514 1170 1514 1170 1514 1170 1514 1170 1514 1170 1514 1170 1514 1170 1514 1170 1707 1707 1707 1707 1707 1707 17	STUBELS 128 4121 1705 1514 170 170 170 170 170 170 170 170 170 170	STUBBLE 122 1146 1206 2010 1514 1515 1515 1516 1514 1516 1516 1516	STATE OF THE STATE	STATE OF THE STATE	STUDENE 122 1146 1170 1514	10 808 122 1140 5002 5010 11 251 50 344 1170 1514 4 STUBBLE 55 239 14628 2347 6975 55 239 391 4628 2347 6975 54 1422 222 2156 2727 4883 56 553 108 1055 2074 57 294 413 58 234 150 4413 58 234 6413 58 234 6413 58 234 6413 64 1524 206 2390 2055 4444 74 1428 129 1801 2303 4105 73 294 93 452 1966 2418 66 553 108 1055 2074 3129	10 808 122 1148 2002 5010 11 215 65 538 1356 2074 1 \$15 65 538 1356 2074 1 \$121 2894 294 4121 1705 5827 1 123 39 391 4628 2247 6975 24 1432 222 2156 2727 4883 29 3320 148 6439 1378 7817 29 3320 148 6439 1378 7817 29 1524 206 2390 2055 4444 24 1428 129 1801 2303 4105 25 353 108 1055 2074 3129 26 553 108 1055 2074 3129 27 41 4140 163 10283 1304 11587 21119	10 808 122 1148 2002 5010 11 2289 294 4121 1705 5827 12 13 50 538 1336 2074 14 STUBBLE 15 129 252 2156 2727 4883 15 1213 129 2583 1830 4413 15 1214 206 2390 2055 4444 15 1224 206 2390 2055 4444 15 122 108 1055 2074 3129 14 1440 163 10283 1304 11587 117 15 1119 39 1780 1152 2931 15 1119 39 1780 1152 2931 15 1119 39 1780 1152 2931 15 1119 39 1780 1152 2931	10 808 122 1148 2002 5010 11 215 65 538 1336 2074 1 818 215 65 538 1306 2074 1 215 65 538 1306 2074 1 218 239 391 4628 2247 6975 24 1432 222 2156 2727 4883 24 1432 222 2156 2727 4883 25 3320 148 6439 1378 7817 29 3320 148 6439 1378 7817 29 3320 148 6439 1378 7817 29 3320 148 6439 1378 7817 21 119 39 1780 1152 2931 22 631 14 1033 840 1873 25 631 14 1033 840 1873 25 557 42 1392 1528 2921
	215 65 538 1536 2074 33	1 215 65 538 1536 2074 33 3 STUBBLE	1 215 65 538 1536 2074 33 3 STUBBLE STUBBLE 294 4121 1705 5827 86 4	STUBBLE 55 538 1536 2074 33 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	STUBBLE 55 538 1536 2074 33 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	T 215 65 538 1536 2074 33 STUBBLE STUBBLE 5 294 4121 1705 5827 86 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	STUBBLE STUBBLE STUBBLE STUBBLE 1 2894 294 4121 1705 5827 86 4 1432 2339 391 4628 2347 6975 96 41 1432 222 2156 2727 4883 81 4 1432 222 2156 2727 4883 81 81 1213 129 2583 1830 4413 84 881. SBILE 9 1324 206 2390 2055 4444 88	STUBBLE STUBBLE STUBBLE 1 2894 294 4121 1705 5827 86 4 1432 2339 391 4628 2347 6975 96 41 1432 222 2156 2727 4883 81 4 1432 222 2156 2727 4883 81 81 1213 129 2583 1830 4413 84 881. SBLE 9 124 206 2390 2055 4444 88 4 1428 129 1801 2303 4105 78 4	STUBELE STUBELE 1 2894 294 4121 1705 5827 86 4 1432 222 2156 2727 4883 81 4 1213 129 2583 1830 4413 84 588LE 9 3320 148 6439 1378 7817 8 9 1524 206 2390 2055 4444 88 4 1428 129 1801 2305 4444 88 4 1428 129 4801 2305 4444 88 6 553 108 1055 2074 3129 45 553	1 215 65 538 1536 2074 33 27 81 82 82 82 82 82 82 82 82 82 82 82 82 82	1 215 65 538 1536 2074 33 27 8 1510 2004 33 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 215 65 538 1536 2074 33 27 8 1510 2004 33 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	1 215 65 538 1536 2074 33 27 8 1510 2004 33 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

TABLE IX (Continued)

	ABOVE PLANT STERMS MATTERS AROU	CUT GROUND HEIGHT LIVE DEAD LIVE DIGEST. CUT CUT		10-CM CUT TO 15 CM		1385 4417 436 5 00 70 7 1 06 1 09	2020 5016 70 Age 181 77 70 1 24 0.14	2606 4765 85 355 365 50 3 50 3 50 3 50 3	7 2189 3315 62 334 301 53 68.4 2.66 1.87 0.68 0.89	CM TO 15 CM ONCE, THEN 50 CM TO 15 CM. TATCE. THEN 75 CM TO 15 CM			1683 3459 52 371 120 74 1 00 0 01	176.0 00.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1564 2820 75 237 135 63 9 31 0 99 1 30	2031 3724 58 308 104 65	9 1837 2296 41 215 269 44 . 3.09 4.65 0.44 0.47	TO 15 CM		1668 5493 97 339 102 78 75.0 1.38 0.54 3.58	2056 4593 96 409 226 59 81.0 2.49 1.25 2.97	1607 2418 53 258 291 47 76.3 2.88 1.46 1.19	1837 2799 53 205 517 27 72.4 2.38 1.23	IT TO 15 CM, 50 CM, CUI TO 15 CM, RACH ONCE, THEN 75 CM TO 15 CM		1722 6329 104 420 0 100 . 1.55 0.87 4.41	2307 5513 91 625 365 56 57 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	6 1902 3107 58 452 312 59 . 2.56 1.80 1.12 1.32	CUT TO 8 CM		1356 7958	
0.14 MZ SAMPLE	ABOVE BELOW ABO	9	- kg/ha	TUBBLE ONCE, THEN 90-CM CUT TO		176	179	57	560 108 1127	UBBLE ONCE, THEN 90			477	248	757 158 125	208		JBBLE ONCE, THEN PRE-BOOT CUT		1733 194 3825	129	122	474 29 962	JEBLE, PRE-BOOT CUT		2099 283 4607	169	151	TUBBLE ONCE, THEN BOOT		3132 258 6602	
ABOVE	TIELD. ABOVE BELOW A	CUT CUT	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	50-CM GROWTH CUT TO 15-CM STUB	1719	1231 1209	980 1841	1041 2347	567 2081	MGT 7: 50-CM GROWTH CUT TO 15-CM STUB	1719	2025		104		969	554 179 1794	MCT 8: 90-CM GROWTH CUT TO 15-CM STUB		2092 1475	1180 1927	373 1485	1808	MCT 9: 50-CM GROWTH CUT TO 15-CM STUB		3236 2308 L439 2 1374 291 1604 1	1450 2138	1751	MGT 10: 50-CM GROWTH CUT TO 15-CM STU		4056 3470 1098 3	1000
		DATE		MGT 6: 50-C	14 JUNE	28 JUNE	23 JULY	20 AUG	14 OCT	MGT 7: 50-C	14 JUNE	28 JUNE		23 JULY	12 AUG	1 SEPT	14 OCT	MCT 8: 90-C	21 JUNE	19 JULY	17 AUG	3 SEPT	TA OCT	MCT 9: 50-C	14 JUNE	21 JULY	17 AUG	14 SEPT	MGT 10: 50-	14 JUNE	2 JULY	

TABLE IX (Continued)

0			STEELS	1	VES	STEMS	+ LEAVES	VERT					200	MITTON	TO COL	101	TOAT ABOA THEFT	-
GT 11: 50-C	TIELD,	A	BELOW	ABOVE	OVE BELOW	ABOVE	BELOW	ABOVE			STEMS		WATTER 7	M	BELOW	ABOVE	ABOVE	BELOW
GT 11: 50-C	M4 SAMPLE	G	5	5	5	5	5	CROOND	HEIGHT	LIVE	(V)	LIVE D	DICEST. CUT	COL	כמד	COL	GROUND	5
ST 11: 50-C	1 1	1 1 1	1 1	kg/l	80	1	1 1	1 1	5	- n/m2	- 7		1 - 1					
7 L. 2772.00	M GROWTH	CUT 15-	-CM STUB	BLE ONC	BLE ONCE, BOOT	CUT TO	8 CM ONCE, THEN	E, THEN	75 CM	CUT TO 15 CM	15 CM							
TH JONE	1686	4	1216	1579	398	1582	1615	3197	86	522	•	100		3 96	20 .			
2 JULY	4056			34.79.5	1			-	3	7.00	,	37		07.7	Toos	77.5	4.20	0.99
9 AUG	2660	1223	1295	1224	1111	2647	1406	1851	100	285	140	. 07	•					
14 SEPT	2000	1643	1694	861	136	2504	1830	4334	77	312	280	26		2 24	1 66	2.42	2.52	0.10
MGT 12: 50-CM GROWTH CUT TO 15-CM	M GROWTH	CUT TO	15-CM S	TUBBLE	TWICE, 1	BOOT CUT	TO 8 CM	ONCE.	THEN 75		CM CUT TO 15	-				2	60.4	0.0
14 JUNE	1719																	
21 JUNE	600																	
9 JULY	2622	1833	870	1536	187	2360	1066	11.00										
SATIC	1201	204	1330	2262	707	2303	0001	4450	96	414	77	95		1.58	0.79	3.63	3.67	0.04
30 ATIC	1035	204	1110	1001	100	104/	1489	3136	7.5	344	188	1	83.7	1.81	0.91	2.45	2.65	0.21
100 00	1707	270	1119	1001	700	1/44	1220	2964	69	569	205	55		6.49	1.57	2.01	2.15	0.12
120 61	243	240	TPAd	431	0	916	1694	2669	23	258	949	29		1.21	1.50	0.26	0.26	0.00
MCT 13: 50-CM GROWTH CUT TO	M GROWTH		15-CM S	TUBBLE	ONCE, EA	EARLY BLOOM CUT		TO 8 CM (ONCE, TH	THEN 75	CM CUT	TO 15	3					
	1719																	
A JULY	4897							The second	Topologica .					,				
	2926	1866	1306	1450	54	3315	1360	4675	114	344	97	84			1 17	2 23	3 34	. 6
17 SEPT	1581	1191	1600	1292	115	2483	1715	4198	62	431	226	99		2.24	1.38	2.50	2.60	200
MGT 14: 50-CM	M GROWTH	CUT TO	15-CM S	TUBBLE	ONCE, EA	EARLY BLOOM CUT		TO 8 CM C	ONCE, TH	THEN PRE-BOOT			TO 15 CM					
14 JUNE	1719																	
9 JULY	4897	2949	829	1460	208	4410	1037	5447	120	202								
17 AUG	2117	1048	1275	1256	120	2303	1305	3608	200	250	776	12		2.50	0.40	3.46	3.48	0.01
	341	919	1299	474	2	890	1340	2230	6.1	203	504	70	400.4	57.7	1.40	2.07	2.25	0.17
19 OCT	685	373	1450	395	98	768	1536	2303	709	260	96T	404		16.7	1./0	1.18	1.31	0.12
MGT 15: 50-CM GROWTH CIT TO 15-CM	M GROWTH	CIT TO	15-CM 8	THREE	0.0	PADLY BLOOM CITY		1	, 0000	Con Man			•	77.	76-1	0.40	0.33	60.0
						-				TOO TOOG WEET		10 0 CT						
14 JUNE	1614	86	914	1636	225	1722	1139	2861	99	416	0	100		1.82	1.50	3.35	3.70	0.44
9 JULY												100 M						
23 AUG		3165	1586	2081	14	5246	1600	9489	103	258	291	45 2	Ä	.39	0.00	3.83	3.84	0.01
19 OCT	838	380	703	230	0	019	703	1313	44	140	237	38	62.9	2.01	1.38	0.14	0.14	00.0

TABLE X

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT IVDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF MILLHY 99 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

					TANK THE	200						7	TWTTA-	24	TVT.			
	CUT	STEMS	MS	LEA	VES	STEMS +	- LEAVES	YIELD					DRY	MITE	CEN	LEAF		NDEX
	YIELD,	ABOVE	BELOW	ABOVE	BELOW	ABOVE	BELOW	ABOVE	PLANT	50	TEMS	-	MITTER	ABOVE	BELOW	ABOVE	ABOVE	
DATE	M2 SAMPLE	CUI	CUI	CUL	CUI	CUI	COT	CROUND	HEIGHT	LIVE	DEAD	LIVE D	ICEST.	COL	COT	COT	GROUND	CUT
	1 1 1		1 1	kg/	PQ	1 1			85	- n/m2	12 -	-	X		1 - 1			
T 2: 90-	NGT 2: 90-CM GROWTH CUT TO 15-CM ST	CUT TO	15-CM S	TUBBLE														
21 JUNE	2922	897	829	1794	226	2691	1055	3746	93	307	0	100	6.69	3.06	1.71	4.70	5.23	0.53
8 JULY	2873	689	1030	1704	06	2393	1119	3513	84	307	27	92	74.4	2.78	1.86	3.98	4.14	0.16
4 AUC	2647	1744	1679	1575	75	3319	1755	5073	97	355	65	85	74.1	1.46	1.12	3.52	3.64	0.12
6 SEPT	2852	1545	2306	1268	124	2813	2430	5243	100	248	144	65	66.3	1.41	1.03	2.41	2.55	0.14
6 ocr	384	280	1564	337	118	617	1683	2300	47	188	226	47	65.4	2.01	1.18	99.0	0.75	0.11
T S: EAR	MGT 5: EARLY BLOOM CUT TO 8-CM STUB	UT TO 8.	-CM STU	BBLE														
29 JUNE	6854	5120	919	3940	93	0906	1012	10001	159	253	0	100	0.69	2.15	1.46	8.59	8.66	0.07
1 AUG	3727	2454	1360	2375	61	4829	1421	6250	123			100	67.5	1.66	1.08	4.90	4.92	0.01
6 SEPT	1482	1160	1459	1048	84	2208	1507	3715	85	276		99	62.8	1.88	0.93	1.81	1.86	0.05
6 oct	350	165	983	273	7	438	066	1428	45		191	44	63.3 ×	2.42	1.10	0.52	0.52	0.00

TABLE XI

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF MILLHY 99 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

DATE CIT CIT STEAR LANGER FIGURE FIG	9 5	RA' RA'	RATIO OVE RELOW	DRY	DRY MATTER CON	NTRIBUTED BY	ED BY	N A	PRIMARY CULM AND TILLER MERISTEMS	CULM AND		AXTL	AKILLARY TILLER HERISTEMS	LER MER	STEMS	AXTL	LARY TI	AXILLARY TILLER ORIGINS	INS
90-04 GROWTH CUTT TO 13-C4 STUBBLE. 190-05 GROWTH CUTT TO 13-C4 STUBBLE. 21.06 0.27 3.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5.2 5	5 =	COL	CUT	STEMS	LEAVE	IN		HEIGHT!	/ NUMBER	HEIGHT	HEIGHT	HEIGHT	NUMBER	MIN. HEIGHT		MEAN	0.000	MIN.	MAX.
SO-CH GROWTH CLT TO 13-CH STUBBLE 3.46 0.27 3.2 93.3 31.6 8.4 1.7 44.0 0.3 7.0 0.3 0.0 0.1 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2	5 =			1	1	1 1 1 1 1 1 1 1	1	CB	n/m2	1 1	- cm		n/m2		1.				W - W
THE 3146 0.47 13.2 49.3 31.6 8.4 1.7 41.0 0.3 7.0 . 0.0		M GROWTH CL	T TO 15	S-CM STU	BBLE														
UNIX 5.46 0.46 19.2 46.2 27.0 9.5 4.5 4.5 4.5 0.2 18.6 0.2 10.0 0.1 0.2 18.0 0.2 18.6 0.2 18.		23.26	0.27	3.2	59.3	3 18	7 0	1.7	0 17										
JUNE 5185 0.13 11.1 21.8 45.9 5.3 4.1 0.2 18.6 0.2 0.0 0.1 0.3 1.1 0.0 0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.1		3.46	0 00	10.2	6 44	27.0		1	0.14	0.3	0.7		0.0		N. N. C.		0.0		
THE STATE OF		200		7.67	7.00	0.12	0.0	4.0	43.0	0.2	18.6		0.0				0.0		
AND 4.75 0.15 6.75 26.9 59.9 71.7 6.6 30.5 0.3 29.9 0.3 4.5 0.2 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5		2.00	0.13	11.11	32.8	49.5	6.5	5.1	44.5	0.5	17.6	0.2	0.9	0.1	0.5	or or			
JULY 3.16 0.09 1.00 1.00 1.00 1.00 1.00 1.00 1.00		6.07	0.36	5.7	26.9	8.64	17.5	9.9	30.5	0.3	29.9	0	2	10		0.0	0.0	1.5	11
ALCHOR 23.16 0.05 3.9 21.6 68.2 6.2 5.9 41.0 0.2 24.3 1.0 21.5 0.2 1.3 5.5 0.9 8.7 5.5 1.5 0.4 4.5 21.5 0.4 4.5 21.5 0.4 4.5 21.1 0.05 6.0 16.3 7.4 21.0 0.2 24.3 1.0 21.3 3.6 5.5 0.2 1.3 5.5 0.4 8.7 5.5 0.5 8.7 5.5 0.6 9.7 5.5 0.6 9.7		4.75	0.12	6.1	26.9	59.9	7.1	7.4	27.0	200	20.00	200	7.	7.0	0.0	10.0	3.5	6.3	12.
SEPT 2.71 0.05 7.1 22.0 67.8 3.4 61.0 0.02 24.3 1.0 51.5 0.2 7.3 5.5 21.5 0.4 6.8 0.0		23.16	0.00	3.0	21.6	6 9 3	10		23.00	200	5.07	0.0	4.0	0.1	I.3	8.0	4.5	2.5	12.
SEPT 2.71 0.05 6.0 16.3 72.4 3.2 18.0 0.3 31.3 3.6 5.5 0.9 8.7 5.5 0.9 8.7 5.5 0.0 8.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		3.07	0.05	1.5	22.0	22.00	7.0	,,	41.0	7.0	24.3	1.0	21.5	0.5	7.3	5.5	21.5	9.0	13.6
90-CH GROWTH CUT TO 15-CH STUBBLE 100		2 71	20.0	100	27.0	0.70	100	4.0	18.0	0.3	31.3	3.6	5.5	0.0	8.7	3.5	5.5	9.0	a
90-CK GROWTH CUT TO 15-CK 513.8 10.5 72.4 3.3 16.0 11.5 2.5 43.0 5.9 8.0 0.6 28.5 6.0 8.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1		7/07	0.00	0.00	TP-3	13.8	3.9	9.6	12.0	8.0	26.0	6.9	7.5	0.3	18.0	2	7.5	a c	
90-CM GROWTH CUT TO 15-CM STUBBLE 100		0.94	0.04	13.8	10.5	72.4	n. n	16.0	11.5	2.5	43.0	5.9	8.0	9.0	28.5	9	0		225
JUNE 2.55 0.21 20.7 49.7 24.4 5.2 12.1 44.7 0.2 46.5 . 0.0 . 0.0 . 0.0 . 0.0 0.0 0.0 0.0 0	r 2: 90-C	M GROWTH CU	T TO 15	-CM STU	BBLE												2	2.4	77.
AUCT 1.06 0.20 32.7 33.7 28.1 5.5 21.6 49.5 0.2 110.0 1.3 0.0 0.3 7.0 9.5 9.5 0.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	21 JUNE	2.55	0.21	20.7	49.7	24.4	5.3	12.1	17 7	0	2 77								
AUG 2.10 0.09 14.5 25.4 51.6 4.5 21.0 49.5 0.2 111.0 1.3 9.5 0.3 7.0 9.5 9.5 3.8 88TT 0.89 0.07 31.3 28.0 37.9 2.8 28.6 14.0 2.3 85.1 8.2 6.0 0.8 23.3 7.0 10.5 0.6 0.8 88TT 0.89 0.07 31.3 28.0 37.9 2.8 28.6 14.0 2.3 85.1 8.2 6.0 0.8 23.3 7.0 10.5 0.6 0.8 88TT 0.89 0.07 31.3 28.0 37.9 2.8 34.0 0.4 106.0 0.0 0.8 23.3 7.0 10.5 0.8 0.8 88TT 0.8 0.11 19.5 34.1 42.6 4.6 16.5 32.3 0.2 34.8 34.8 34.8 34.8 34.8 34.8 34.8 34.8	16 JULY	1.06	0.20	22 7	22 7	200				3.0	40.0		0.0				0.0		•
FRE-BOOT CUT TO 15-CH STUBBLE JUNE 1.06 0.12 39.9 42.1 15.9 2.1 28.3 34.0 0.4 106.0 0.8 5.8 10.5 0.2 23.3 7.0 10.5 0.6 0.8 10.9 0.0 0.8 23.3 5.0 6.0 0.8 20.8 10.8 10.0 0.8 23.3 5.0 6.0 0.8 20.8 10.8 10.0 0.8 20.8 20.8 20.8 20.8 20.8 20.8 20	12 ATIC	2 10	000	1.4		7.07	0.0	0-17	49.5	0.2	111.0	1.3	9.5	0.3	7.0	9.5	9.5	3.8	14.8
PRE-BOOT CUT TO 15—CM STUBBLE 1.06 0.12 39.9 42.1 15.9 2.1 28.3 34.0 0.4 106.0 0.0 0.8 23.3 5.0 6.0 0.8 20.		0 80	0.0	24.5	47.67	51.6	4.5	14.4	39.0	0.5	56.0	5.8	10.5	0.2	23.3	7.0	10.5	9.0	13.6
PRE-BOOT CUT TO 15-CM STUBBLE JUNE 1.06 0.12 39.9 42.1 15.9 2.1 28.3 34.0 0.4 106.0 JUNE 1.06 0.12 39.9 42.1 15.9 2.1 28.3 34.0 0.4 106.0 JULY 1.05 0.12 39.9 42.1 15.9 2.1 28.3 34.0 0.4 106.0 JULY 1.05 0.12 39.9 42.1 18.6 34.1 42.6 4.6 16.5 32.3 0.2 64.8 7.6 8.0 0.3 23.6 10.0 8.0 SEPT 1.98 0.05 6.4 12.9 17.3 66.0 3.8 10.0 18.5 1.5 37.3 3.5 9.0 0.6 10.3 6.5 9.0 0.5 SEPT 1.98 0.05 6.4 12.9 17.3 66.0 3.8 20.7 15.5 6.0 36.0 14.4 10.0 1.8 30.3 5.0 10.0 0.8 BOOT CUT TO 8-CM STUBBLE JULY 0.69 0.15 52.6 36.0 9.9 1.5 40.4 44.0 0.2 121.7 3.0 0.0 1.5 4.5 10.0 0.8 JULY 0.69 0.15 52.6 36.0 9.9 1.5 16.8 14.5 0.8 54.8 5.8 5.0 0.2 11.5 4.5 11.5 16.8 14.5 0.8 54.8 5.8 5.0 0.2 11.5 4.5 11.5 10.0 0.2 11.0			70.0	21.3	70.07	31.9	2.8	28.6	14.0	2.3	85.1	8.2	0.9	0.8	23.3	5.0	0.9	0.8	11
JUNE 1.06 0.12 39.9 42.1 15.9 2.1 28.3 34.0 0.4 106.0 . 0.0 0.3 23.6 10.0 8.0 2.8 14.8 10.0 11.8 18.6 34.1 42.6 4.6 16.5 32.3 0.2 64.8 7.6 8.0 0.3 23.6 10.0 8.0 2.5 14.8 10.0 10.3 23.6 10.3 23.6 10.0 8.0 2.5 14.8 10.0 10.3 23.6 10.3 6.5 9.0 0.5 10.3 10.3 10.3 10.3 10.3 10.3 10.3 10.3				STUBBLE															
JULY 1.95 0.11 18.6 34.1 42.6 4.6 16.5 32.3 0.2 64.8 7.6 8.0 0.1 2.6 10.0 0.0 2.8 14.8 5.4 9.0 0.6 10.3 6.5 9.0 0.5 1.8 14.8 5.4 9.0 0.6 10.3 6.5 9.0 0.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1	28 JUNE	1.06	0.12	39.9	42.1	15.0	2.1	28 2	34.0	7 0	0 701								
AUC 3.81 0.05 9.2 35.1 52.6 3.1 19.2 20.5 0.2 31.8 7.6 8.0 0.3 23.6 10.0 8.0 2.8 1 SEPT 1.98 0.05 6.4 12.0 77.8 3.8 11.0 18.5 6.0 36.0 14.4 10.0 1.8 30.3 5.0 10.0 0.5 1 BOOT CUT TO 8-CM STUBBLE AUG 2.11 0.03 20.6 38.5 39.7 1.2 14.2 18.0 1.1 49.0 13.5 5.0 2.0 1.5 4.5 5.0 0.0 1.5 1.0 0.8 SEPT 1.98 0.05 6.4 12.0 77.8 3.8 11.0 18.5 6.0 36.0 14.4 10.0 1.8 30.3 5.0 10.0 0.8 1.5 10.0 0.8 1.5 1.5 10.0 1.8 30.3 5.0 10.0 0.8 1.5 10.0 0.8 1.5 1.5 10.0 1.8 30.3 5.0 10.0 0.8 1.5 10.0 0.8 1.5 1.5 10.8 1.5 10.8 1.5 10.8 1.5 10.8 54.8 5.8 5.0 0.0 1.5 1.5 1.5 1.0 1.5 10.8 1.5 10.8 14.5 0.8 54.8 5.8 5.0 0.0 0.2 21.0 4.5 5.0 0.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	26 JULY	1.95	0.11	18.6	1 92	42.64	7 7	16.6	24.0	***	100.0		0.0				0.0		
SEFT 1.98 0.05 6.4 12.9 17.3 66.0 3.8 11.0 18.5 1.5 37.3 3.5 9.0 0.6 10.3 6.5 9.0 0.5 1 1.5 1 0.0T 4.55 0.06 12.9 17.3 66.0 3.8 11.0 18.5 1.5 37.3 3.5 9.0 0.6 10.3 6.5 9.0 1.5 1 1.5 1 0.0T TO 8-CM STUBBLE BOOT CUT TO 8-CM STUBBLE NUCK 2.11 0.03 20.6 38.5 39.7 1.2 14.2 18.0 1.1 49.0 13.5 5.0 2.0 43.5 4.5 5.0 0.8 1.0 0.8 1.5 0.0Z 21.5 33.7 44.1 0.8 13.9 8.5 0.5 41.8 3.0 2.0 1.5 4.5 1.5 1.0 0.0 2.1 1.5 16.8 14.5 0.8 54.8 5.8 9.0 0.2 21.0 4.5 9.0 2.6 1.0 0.2 21.0 4.5 9.0 2.6 2.6 2.0 0.3 23.5 16.9 9.9 1.5 16.8 14.5 0.8 54.8 5.8 5.8 9.0 0.2 21.0 4.5 9.0 2.6 2.6 2.0 2.0 2.6 21.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2	20 AUG	3.81	0 08	0.0	25.1	20.02		5.07	32.3	0.2	8.49	7.6	8.0	0.3	23.6	10.0	8.0	2.8	15.7
DOT CUT TO 8-CM STUBBLE BOOT CUT TO 8-CM STUBBLE BOOT CUT TO 8-CM STUBBLE SERICAL STUBLE SERICAL STUBBLE SERICAL STUBBLE	3 SEPT	1 00	200	7.0	7.00	0.75	1.0	7.6	20.5	0.2	31.8	5.4	0.6	9.0	10.3	6.5	0.6	0.5	12
BOOT CUT TO 8-CM STUBBLE JULY 0.69 0.15 52.6 36.0 9.9 1.5 40.4 44.0 0.2 121.7 NUC 2.11 0.03 20.6 38.5 39.7 1.2 14.2 18.0 1.1 49.0 13.5 5.0 2.0 43.5 4.5 5.0 0.0 SEPT 1.58 0.02 21.5 33.7 44.1 0.8 13.9 8.5 0.5 41.8 3.0 2.0 1.5 4.5 1.0 1.0 SERT OCT 0.82 0.03 23.5 16.9 58.1 1.5 16.8 14.5 0.8 54.8 5.8 9.0 0.2 21.0 4.5 9.0 2.6 EARLY BLOOM CUT TO 8-CM STUBBLE JULY 0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 5.0 0.0 5.5 16.9 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0		4.30	0.00	4.0	12.0	8.//	90	11.0	18.5	1.5	37.3	3.5	0.6	0.8	20.8		0.0	1 2	
BOOT CUT TO 8-CM STUBBLE JULY 0.69 0.15 52.6 36.0 9.9 1.5 40.4 44.0 0.2 121.7 AUG 2.11 0.03 20.6 38.5 39.7 1.2 14.2 18.0 1.1 49.0 13.5 5.0 2.0 43.5 4.5 5.0 0.8 SEPT 1.58 0.02 21.5 33.7 44.1 0.8 13.9 8.5 0.5 41.8 3.0 2.0 1.5 4.5 1.5 2.0 1.0 CCT 0.82 0.03 23.5 16.9 58.1 1.5 16.8 14.5 0.8 54.8 5.8 9.0 0.2 21.0 4.5 9.0 2.6 EARLY BLOOM CUT TO 8-CM STUBBLE JULY 0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 5.0 0.0 5.5 43.0 5.5 1.0 AUG 0.77 0.02 40.7 31.5 27.2 0.6 31.7 14.5 0.8 89.5 45.9 2.5 6.7 74.0 3.0 2.5 1.0 CCT 1.46 0.03 24.7 19.9 54.1 1.3 19.3 11.0 1.3 59.5 16.8 6.0 0.5 43.0		4.33	0.00	12.9	17.3	0.99	3.8	20.7	15.5	0.9	36.0	14.4	10.0	1.00	30.3	20.5	10.01	10	10
JULY 0.69 0.15 52.6 36.0 9.9 1.5 40.4 44.0 0.2 121.7 . 0.0 .			M STUBB.	LE															2
AUG 2.11 0.03 20.6 38.5 39.7 1.2 14.2 18.0 1.1 49.0 13.5 5.0 2.0 43.5 4.5 5.0 0.8 58PT 1.58 0.02 21.5 33.7 44.1 0.8 13.9 8.5 0.5 41.8 3.0 2.0 1.5 4.5 1.5 2.0 1.0 0.0 1.0 1.0 0.0 1.0 0.2 21.0 4.5 9.0 2.6 EARLY BLOOM CUT TO 8-CM STUBBLE JULY 0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 5.0 0.0 0.2 21.0 3.0 2.5 1.0 0.0 0.1 1.0 1.3 59.5 16.8 6.0 0.5 43.0 3.0 2.5 1.0 0.0 0.1 1.0 1.3 59.5 16.8 6.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.5 43.0 3.0 2.5 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	1 JULY	0.69	0.15	52.6	36.0	6.6	1.5	40.4	44.0	00	191 7								
SEPT 1.58 0.02 21.5 33.7 44.1 0.8 13.9 8.5 0.5 41.8 3.0 2.0 2.0 43.5 4.5 5.0 0.8 0.8 0.7 0.82 0.03 23.5 16.9 58.1 1.5 16.8 14.5 0.8 54.8 5.8 9.0 0.2 21.0 4.5 9.0 2.6 EARLY BLOOM CUT TO 8-CM STUBBLE NULX 0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	9 AUG	2.11	0.03	20.6	38.5	39.7	1.2	14.2	18.0	1:5	7077		0.0				0.0		•
OCT 0.82 0.03 23.5 16.9 58.1 1.5 16.8 14.5 0.8 54.8 5.8 9.0 0.2 21.0 4.5 2.0 1.0 2.6 EARLY BLOOM CUT TO 8-CM STUBBLE JULY 0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	3 SEPT	1.58	0.02	21.5	33.7	44.1	8	13.0	200	1 0	49.0	25.5	0.0	2.0	43.5	4.5	2.0	0.8	8.0
EARLY BLOOM CUT TO 8-CM STUBBLE JULY 0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 . 0.0 . 0.0 . 0.0 . 0.0 AUG 0.77 0.02 40.7 31.5 27.2 0.6 31.7 14.5 0.8 89.5 45.9 2.5 6.7 74.0 3.0 2.5 1.0 . 0.0 OCT 1.46 0.03 24.7 19.9 54.1 1.3 19.3 11.0 1.3 59.5 16.8 6.0 0.5 43.0 3.0 2.5 1.0	14 OCT	0.82	0.03	23.5	16.9	58.1	1.5	16.8	14.5		0.14	2.0	0.2	1.5	4.5	1.5	2.0	1.0	1.5
JULY 0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 , 0.0 ,		I BLOOM CUT		M STUBBI	200						7.0	0.1	2.0	7.0	0.12	4.5	9.0	2,6	9.0
0.49 0.22 59.6 28.8 9.5 2.2 43.6 37.0 0.2 167.6 . 0.0					1														
0.77 0.02 40.7 31.5 27.2 0.6 31.7 14.5 0.8 89.5 45.9 2.5 6.7 74.0 3.0 2.5 1.0 1.46 0.03 24.7 19.9 54.1 1.3 19.3 11.0 1.3 59.5 16.8 6.0 0.5 42.0 3.0 2.5 1.0	8 JULY	0.49	0.22	29.6	28.8	9.5	2.2	43.6	37.0	0.2	167.6		0.0				0		
OCT 1.46 0.03 24.7 19.9 54.1 1.3 19.3 11.0 1.3 59.5 16.8 6.0 0.5 4.1 5.0 1.0	23 AUG	0.77	0.02	40.7	31.5	27.2	9.0	31.7	14.5	9.0	89.5	45.9	2.5	6.7	74.0	2	200		
	14 OCT	1.46	0.03	24.7	19.9	54.1	1.3	19.3	11.0	1.3	59.5	16.8	6.0		43.0	2.6	2.7	200	200

TABLE XI (Continued)

CUT MANY NUMBER HEIGHT		LEA R	LEAP/STEM RATIO	DRY	DRY MATTER CON		ED BY	O. F	PRIMARY CULM AND FILLER MERISTEMS	CULM AND IERISTEMS		AXIL	AXILLARY TILLER MERISTEMS	LER MERT	STEMS	AXTES	SWIDING WATTER WATER	140 441	CTWC
SO-CH GROWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90-CH CUT TO 15 CH SO CH CHOWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90-CH CUT TO 15 CH SO CH CHOWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90-CH CUT TO 15 CH SO CH CHOWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90-CH CUT TO 15 CH SO CH CHOWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90-CH CUT TO 15 CH CHOKE, THEN 50 CH TO 15 CH, TVICE, THEN 75 CH TO 15 CH SO CH CHOWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90-CH CUT TO 15 CH CHOKE, THEN 50 CH TO 15 CH, TVICE, THEN 75 CH TO 15 CH SO CH CHOWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90 CH TO 15 CH CHOKE, THEN 50 CH TO 15 CH, TVICE, THEN 75 CH TO 15 CH SO CH CHOWTH CUT TO 13-C4 STUBBLE ONCE, THEN 90 CH TO 15 CH CHOKE, THEN 90 CH CH	DATE	ABOVE	BELOW	STEMS	VE CUT	STEMS I		MEAN HEIGHT!	NUMBER	MIN. HEIGHT	MAX. HEIGHT	MEAN	NUMBER	MIN.	MAX.	MEAN	MINABED	MIN.	MAX.
S0-CH GROWTH CUT TO 13-CH STUBBLE ONCE, THEN 90-CH CUT TO 15 CH NR 1.33				1	1	%	1	CH	n/m2		- CH -		n/m2		- CB -			uerour	upTout
NE 1.39 0.14 27.6 41.1 27.5 3.8 14.3 40.5 0.3 71.0 0.0 0.1 22.8 6.5 12.0 0.9 0.1 22.8 6.5 12.0 0.9 0.9 0.2 22.9 2.9 27.4 46.5 13.1 13.1 45.5 0.3 67.8 2.6 13.0 0.1 22.8 6.5 12.0 0.9 0.9 0.02 22.9 2.7 4 46.5 1.1 13.7 15.5 0.3 65.0 11.4 1 12.0 0.1 22.8 6.5 12.0 0.9 0.0 12.2 2.9 0.0 12.2 2.9 0.0 12.2 2.9 0.0 12.2 2.9 0.0 12.2 16.8 0.2 2.9 0.0 12.2 16.8 0.2 2.9 0.0 12.2 16.8 0.2 2.9 0.0 12.2 16.8 0.2 2.9 0.0 12.2 16.8 0.2 2.9 0.0 12.2 16.8 0.2 2.9 0.0 12.2 16.8 0.0 12.2 16.8 0.0 12.2 16.8 0.0 12.2 16.8 0.0 12.2 16.8 0.0 12.2 16.8 0.0 12.2 16.8 0.0 12.2 16.2 16.2 16.2 16.2 16.2 16.2 16.2	(CT 6: 50-CP	M CROWTH	CUT TO 1	S-CM ST	UBBLE ONCE		90-CM												
NE 2.13 0.14 12.2 40.13 12.3 14.3 40.5 0.3 71.0 0.0 0.1 12.8 6.5 12.0 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0	14 JUNE																		
11. 1.5 0.00 2.2. 2.9 27.4 48.6 1.1 1.1 4.5.5 0.2 67.6 2.0 1.2 1.2 1.0 0.1 2.8 6.5 12.0 0.9 0.9 0.05 17.2 16.8 6.2 12.1 19.9 16.5 10.3 66.0 12.3 6.5 10.0 0.1 2.8 6.5 12.0 0.9 0.05 17.2 16.8 62.8 12.1 19.9 15.5 11.3 66.0 12.3 6.5 0.6 6.5 10.0 0.8 15.5 12.0 0.1 2.3 6.5 0.6 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.0 0.1 2.3 6.5 0.1 2.3 6.1 6.1 0.1 2.2 6.1 6.1 0.1 2.2 6.1 6.1 6.1 6.1 6.1 6.1 6.1 6.1 6.1 6.1	28 JUNE	1.53				27.5	90	16.3	5.07	0 3	21.0								
C 1.30 0.02 22.9 22.6 46.6 11.1 17.7 16.5 0.3 65.0 2.7 4.7 0.3 65.0 0.1 4.4 12.0 0.3 45.5 4.5 12.0 0.8 89.0 2.9 20.0 11.4 12.0 0.0 1.4 45.5 4.5 12.0 0.8 89.0 12.0 12.0 0.0 11.4 12.0 0.0 1.4 45.5 4.5 12.0 0.8 89.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12	23 JULY	2.17				36.8	3.7	13.1	45.5	200	20.47		200				0.0		
THOUSE TO 19-CH GROWTH CUT TO 19-CH STUBBLE ONCE, THEN 90 CM TO 15 CM ONCE, THEN 90 CM TO 15 CM, TWICE, THEN 75 CM TO 15 CM TO 15 CM ONCE, THEN 90 CM ONCE, THEN 90 CM TO 15 CM ONCE, THEN 90 CM ONCE,	20 AUG	1.30				2 87		17.7	10.00	2.0	0.70	2.0	17.0	1.0	22.8	6.5	12.0	0.0	15.2
SO-CH GROWTH CUT TO 15-CH STUBBLE ONCE, THEN 90 CH TO 15 CH ONCE, THEN 90 CH TO 15 CH TO 15 CH TO 15 CH, THEN 75 CH TO 15 CH NE NE NE NE 1.81 1.81 0.40 2.42 2.40 0.45 0.10 0.45 0.45 0.10 0.45 0.10 0.45 0.10 0.45 0.45 0.10 0.45 0.	14 OCT	0.99				62.8	3.2	10.0	15.5		0.50	2.3	0.00	9.0	2.5	0.9	6.5	8.0	14.0
NE 1.81 0.40 24.2 24.8 36.9 14.1 7.1 34.5 0.3 29.0 0.4 6.0 0.1 0.6 10.5 6.0 7.1 5.8 0.1 17.5 26.9 36.9 14.1 7.1 34.5 0.3 29.0 0.4 6.0 0.1 0.6 10.5 6.0 7.1 5.8 0.1 17.5 26.9 4.9 5.6 16.1 22.0 0.3 29.5 11.2 3.5 0.3 4.1 5.1 5.2 2.8 11.2 11.2 11.2 11.2 11.2 11.2 11.		(Chouru	TIME TO 1	E MY CH	avino a reat						0.00	****				4.5	12.0	0.8	13.4
NE		T CAUMAIN	T OT 107	שבים	UDDEE ONCE	THEN		0 15 CM	ONCE, TE		10 15	M, TWICE,							
NE 181 0.40 24.2 24.8 36.9 14.1 7.1 34.5 0.3 29.0 0.4 6.0 0.1 0.6 10.5 0.7 1.1 5.8 0.8 11.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1		. N																	
1.81 0.40 24.2 24.8 36.9 14.1 7.1 34.5 0.3 29.0 0.4 6.0 0.1 0.6 10.5 6.0 7.1 2.8 2	28 JUNE															•			•
1. 1. 1. 1. 1. 1. 1. 1.	14 JULY	1.81			24.8	36.9	1.41	7.1	3 72		20.00								
FT 1.58 0.11 17.5 26.9 49.9 5.6 10.1 27.0 0.3 51.5 0.3 6.8 5.5 0.3 51.1 5.9 0.4.5 2.9 FT 1.58 0.11 17.5 26.9 49.9 5.6 10.1 2.0 0.3 51.5 0.1 38.8 4.6 7.5 0.8 13.1 10.0 7.5 5.5 1.0 FT 1.58 0.11 15.9 22.9 54.3 5.8 13.6 18.5 0.1 38.8 4.6 7.5 0.8 13.3 10.0 7.5 5.5 1.0 FT 1.58 0.11 15.9 22.9 54.3 5.8 13.6 18.5 0.1 38.8 4.6 7.5 0.8 13.3 10.0 7.5 5.5 1.0 FT 1.58 0.11 15.9 22.9 54.3 5.8 13.6 18.5 0.1 38.8 4.6 7.5 0.8 13.3 10.0 7.5 5.5 1.0 FT 1.58 0.11 15.9 5.0 2.9 54.3 5.8 13.6 11.9 14.5 11.3 10.0 5.8 13.5 10.0 7.5 5.5 1.0 FT 1.54 0.06 25.9 29.5 41.8 2.8 19.4 38.0 0.2 76.9 8.7 13.5 0.2 54.2 6.5 13.5 1.2 FT 1.54 0.01 16.0 17.1 66.1 0.9 2.2 12.5 9.5 3.3 44.0 0.0 0.0 0.2 5.9 5.8 3.5 1.5 2.0 FT 1.54 0.01 16.0 17.1 66.1 0.9 2.8 19.4 38.0 0.2 87.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	23 JULY	5.58			22.0	63 1	101	10	11		20.0	4.0	0.0	1.0	0.0	10.5	6.0	7.1	14.4
FT 1.58 0.11 15.9 23.9 54.3 5.8 10.1 15.9 0.1 15.9 23.9 54.1 5.8 10.0 2.3 30.0 6.8 12.2 3.5 0.3 4.1 5.5 3.5 2.9 10.0 0.2 1.2 0.0 0.2 1.2 0.0 1.3 10.0 0.2 1.3 10.0 0.3 10.0 10.2 10.0 10.0	12 AUG	2.30				7007	70.7	16.1	0.75	2.0	19.0	2.0	4.5	0.3	5.1	0.6	4.5	2.8	15.8
THE TIPE OF THE NAME OF THE NA	TGEDT	1 20					0.0	7.07	0.22	0.3	53.5	1.2	3.5	0.3	4.1	5.5	3.5	2.9	7.1
NE NOTE CONTROLLE ONCE, THEN PRE-BOOT CUT TO 15 CA GAS S.S. 0.5 16.3 5.5 5.5 1.0 0.0 CA GROWTH CUT TO 15-CA STUBBLE ONCE, THEN PRE-BOOT CUT TO 15 CA GAS S.S. 0.5 1.3 3.6 6.5 3.5 5.5 1.0 0.8 0.1 134.5 1.3 1.0 0.5 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3 1.3	17 000	7.70				24.3	2.0	13.6	18.5	0.1	38.8	4.6	7.5	0.8	13.3	10.0	7.5	5.5	14.5
90-CM GROWTH CUT TO 15-CM STUBBLE ONCE, THEN PRE-BOOT CUT TO 15 CM NB LY 1.28 0.13 37.8 31.6 25.0 29.5 41.8 2.8 13.5 0.1 134.5 1.3 3.0 0.5 3.5 6.5 3.0 3.8 LY 1.29 0.13 37.8 31.6 27.0 3.6 28.6 31.5 0.1 134.5 1.3 3.0 0.5 54.2 6.5 11.5 11.2 LY 1.24 0.06 25.9 29.5 41.8 2.8 11.4 38.0 0.2 76.9 8.7 13.5 0.2 2.0 8.0 5.0 1.8 SO-CM GROWTH CUT TO 15-CM STUBBLE, PRE-BOOT CUT TO 15 CM, EACH ONCE, THEN 75 CM CUT TO 15 CM, EACH ONCE, THEN 60 TO 10 CM, 1	14 OCI	1.6/				78.0	1.9	14.5	10.0	2.3	30.0	6.8	5.5	0.5	16.3	5.5	5.5	1.0	11.0
NE 0.89 0.13 37.8 31.6 27.0 3.6 28.6 31.5 0.1 134.5 1.3 3.0 0.5 3.5 6.5 3.5 6.5 3.0 3.8 1.24 0.06 25.9 29.5 41.8 2.8 19.4 38.0 0.2 76.9 8.7 13.5 0.2 54.2 6.5 13.5 1.2 1.2 0.09 15.7 18.1 61.0 5.2 16.2 12.0 2.0 53.0 1.3 5.0 0.5 5.0 0.5 5.0 13.8 1.3 5.0 0.2 54.2 6.5 13.5 11.8 1.2 0.09 15.7 18.1 66.1 0.9 22.5 9.5 9.5 3.0 0.2 76.9 8.7 13.5 0.2 54.2 6.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13		1 GROWTH (S-CM STU	BBLE ONCE	THEN	PRE-BOO	CH											
LY 0.89 0.13 37.8 31.6 27.0 3.6 28.6 31.5 0.1 134.5 1.3 3.0 0.5 3.5 6.5 3.5 3.6 3.8 8.7 13.5 0.1 134.5 1.3 3.0 0.5 5.2 5.2 5.2 5.3 13.5 1.2 1.2 1.2 0.06 25.9 29.5 41.8 2.8 19.4 38.0 0.2 76.9 8.7 13.5 0.2 54.2 6.5 13.5 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	21 JUNE											C							
C 1.24 0.06 25.9 29.5 41.8 2.8 19.4 38.0 0.2 76.9 1.3 5.0 0.5 3.5 6.5 3.3 0 3.8 1.2 1.2 1.2 1.2 0.09 15.7 18.1 61.0 5.2 16.2 12.0 2.0 53.0 1.3 5.0 0.5 5.5 5.8 3.5 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2	19 JULY	0.89				27.0	3.6	28.6	2T. K		137.								
FT 1.21 0.09 15.7 18.1 61.0 5.2 16.2 12.0 2.0 5.0 1.3 1.5 0.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5 1		1.24				61.8	2.8	10.4	100	100	76.0	7 - 0	2.5	0.0	2.5	6.5	3.0	3.00	8.0
T 1.54 0.01 16.0 17.1 66.1 0.9 22.5 9.5 3.3 46.0 5.6 1.5 5.5 5.8 3.5 1.5 2.3 50-0.8 5.6 1.5 5.5 5.8 3.5 1.5 2.3 50-0.8 50-0.8 50-0.9 5.6 1.5 5.6 1.5 5.5 5.8 3.5 1.5 2.3 50-0.8 5	3 SEPT	1.21				61.0	5.3	16.2	12.0				2.5	7.0	24.2	0.0	13.5	1.2	13.6
SO-CM GROWTH CUT TO 15-CM STUBBLE, PRE-BOOT CUT TO 15 CM, EACH ONCE, THEN 75 CM CUT TO 15 CM. NE LY 0.87 0.20 3.00 3.5 2.30 4.5 2.7 2.30 0.2 3.00 3.2 4.33 0.00 1.02 1.02 0.08 2.7 1.02 0.08 2.7 1.02 0.08 2.7 2.4 1.05 0.08 2.7 2.8 2.4 2.4 2.1 2.1 2.2 3.0 3.0 3.0 3.0 3.0 3.0 3.0	19 OCT	1.54				66.1	6.0	22.5	9.5) er	46.0	7.5	0 4	0.v	2.0	00 6	2.0	e .	12.8
NE 1. 0.87 0.20 39.0 33.5 23.0 4.5 27.2 39.0 0.2 87.3 LY 4.34 0.13 8.9 36.0 49.0 6.1 6.7 41.5 0.2 37.5 0.9 13.5 0.2 3.0 7.5 13.5 2.4 ELY 4.34 0.13 8.9 36.0 49.0 6.1 6.7 41.5 0.2 37.5 0.9 13.5 0.2 3.0 7.5 13.5 2.4 ELY 4.34 0.13 8.9 36.0 49.0 6.1 6.7 41.5 0.2 37.5 0.9 13.5 0.2 3.0 7.5 13.5 2.4 ELY 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM NE LY 0.90 0.24 43.7 39.2 13.8 3.3 24.9 42.5 0.2 99.5 ELY 0.92 0.01 38.6 34.4 26.8 0.3 27.3 23.0 0.4 102.6 33.1 3.4 8.5 0.6 15.8 3.5 8.5 0.5 ELY ELY 0.92 0.02 15.8 29.8 53.1 1.4 11.3 19.5 0.6 38.1 3.4 8.5 0.6 15.8 3.5 8.5 0.5		1 GROWTH		S-CM STU	BBLE, PRE					_		MCB THEN	75 04				7:5	6.3	7.4
LY 6.87 0.20 39.0 33.5 23.0 4.5 27.2 39.0 0.2 87.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	14 JUNE												3		5				
LY 4.34 0.13 8.9 36.0 49.0 6.1 6.7 41.5 0.2 37.5 0.9 10.0 0.2 3.0 7.5 13.5 2.4 0.1 0.1 0.2 0.0 2.7 8.2 0.2 3.0 7.5 13.5 2.4 0.2 1.0 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0.2 0	1 JULY	0.87	0.20			23.0	, k	27.2	. 00			•							
FT 1.59 0.08 27.8 28.0 41.0 31.1 21.0 0.3 44.3 7.2 13.5 0.2 3.0 7.5 13.5 2.4 FT 1.59 0.08 15.1 21.3 59.1 4.5 13.1 21.0 0.3 44.3 7.2 12.5 0.1 25.0 7.0 10.5 1.4 10.5 0.08 15.1 21.3 59.1 4.5 13.1 21.0 0.3 44.3 7.2 12.5 0.1 25.0 6.5 12.5 1.0 50.4 CKNTH CUT TO 15-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM NE UX 0.90 0.24 43.7 39.2 13.8 3.3 24.9 42.5 0.2 99.5 C 0.92 0.01 38.6 34.4 26.8 0.3 27.3 23.0 0.4 102.6 3.3 6.0 0.3 14.0 4.0 6.0 0.6 FT 2.11 0.02 15.8 29.8 53.1 1.4 11.3 19.5 0.6 38.1 3.4 8.5 0.6 15.8 3.5 8.5 0.5	21 JULY	4.34				60.00	4.5	7.17	28.0	7.0	67.3		0.0				0.0		
PT 1.59 0.08 15.1 21.3 59.1 4.5 13.1 21.0 0.3 44.3 7.2 12.5 0.1 25.0 6.5 12.5 1.4 SO-CM GROWTH CUT TO 15-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM LY 0.90 0.24 43.7 39.2 13.8 3.3 24.9 42.5 0.2 99.5 0.0 CY 0.92 0.01 38.6 34.4 26.8 0.3 27.3 23.0 0.4 102.6 3.3 6.0 0.3 14.0 4.0 6.0 0.6 PT 2.11 0.02 15.8 29.8 53.1 1.4 11.3 19.5 0.6 38.1 3.4 8.5 0.6 15.8 3.5 8.5 0.5	17 ATIC	1 00				0.00	100	1.0	4T.5	7.0	37.5	6.0	13.5	0.2	3.0	7.5	13.5	2.4	13.5
SO-CM GROWTH CUT TO 15-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM LY 0.90 0.24 43.7 25.0 12.5 0.1 25.0 6.5 12.5 1	14 SEPT	1 50				91.0	3.5	17.7	39.5	0.1	101.5	11.4	10.5	0.2	42.0	7.0	10.5	1.4	12.0
50-CM GROWTH CUT TO 15-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM NE LY 0.90 0.24 43.7 39.2 13.8 3.4 24.9 42.5 0.2 99.5 0.0 0.0 0.0 0.0 0.0 0.0 0.		4.13	90.0	17:57	6777		4.5	13.1	21.0	0.3	44.3	7.2	12.5	0.1	25.0	6.5	.12.5	1.0	13.3
E 0.90 0.24 43.7 39.2 13.8 3.3 24.9 42.5 0.2 99.5 0.0 1 0.92 0.01 38.6 34.4 26.8 0.3 27.3 23.0 0.4 102.6 3.3 6.0 0.3 14.0 4.0 6.0 0.6 1 2.11 0.02 15.8 29.8 53.1 1.4 11.3 19.5 0.6 38.1 3.4 8.5 0.6 15.8 3.5 8.5 0.5		M GROWTH	CUT TO	15-CM ST	TUBBLE ONC		BOOT	UT TO 8	1										
T 0.90 0.24 43.7 39.2 13.8 3.3 24.9 42.5 0.2 99.5 . 0.0 . 0.	14 JUNE																		
1 0.92 0.01 38.6 34.4 26.8 0.3 27.3 23.0 0.4 102.6 3.3 6.0 0.3 14.0 4.0 6.0 0.6 1 2.11 0.02 15.8 29.8 53.1 1.4 11.3 19.5 0.6 38.1 3.4 8.5 0.6 15.8 3.5 8.5 0.5	Z JULY	0.90	0.24		39.2	13.8	3.3	24.9	42.5	0.2	99.5		0.0				0.0		7
SERI 2:11 0:02 13:8 29:8 33:1 1:4 11:3 19:5 0:6 38:1 3:4 8:5 0:6 15:8 3.5 8:5 0.5	12 AUG	0.92	0.01		34.4	26.8	0.3	27.3	23.0	9.0	102.6	3.3	0.9	0.3	14.0	4.0	6.0	9.0	7.7
		77.7	0.02		29.82	53.I	1.4	11.3	19.5	9.0	38.1	3.4	8.5	9.0	15.8	3.5	80	0.5	7.6

TABLE XI (Continued)

	2	RATIO	DRY N	DRY MATTER CONT	NTRIBUTED BY	ID BY	1	TILLER MERISTEMS	RISTEMS		AXTL	LARY TIT	AXILLARY TILLER MERISTEMS	STEMS	AVTITABE	10.00	TITTED OPTITUE	CTMC
DATE	ABOVE	BELOW	STEMS	ABOVE CUT		BELOW CUT	MEAN HEIGHT!/	MIN. NUMBER HEIGHT	MIN. HEIGHT	MAX.	MEAN	NUMBER	MIN. HEIGHT	MAX.	MEAN	NUMB	MIN. HETCHT	MAX.
			1 1	2	%		cm	n/m2		- cm -		n/m2		- CH -				10
MGT 11: 50-CM GROWTH CUT 15-CM STUBBLE ONCE, BOOT CUT	TH GROWTH	CUT 15-C	M STUBB	LE ONCE,	BOOT CU	I TO 8	CM ONCE,		THEN 75 CM CUT	TO 15 CM	1				•			
14 JUNE	213.0	0.32	0.1	9.69	37.9	6.0	1.6	48.5	0.3	6.3		0.0				0		
2 JULY														•		2:0	A. C. C. C.	
9 AUG	1.12		31.1	31.8	34.3	2.9	22.5	26.5	0.2	105.3	1.5	5.5	0.2	. 2	. 4	. w	1 0	. 4
14 SEPT	0.54	0.08	38.0	20.8	38.0	3.2	26.4	14.5	0.2	88.0	2.8	3.5	0.2	8.1	5.0	1 19	1.3	10.3
MGT 12: 50-CM GROWTH CUT TO 15-CM STUBBLE TWICE, BOOT	TH GROWTH	CUT TO 1	5-CM ST	UBBLE TWI	CE, BOO	COT	TO 8 CM 0	ONCE, THEN	IN 75 CM	CUT TO 15	LS CM							
14 JUNE																		
21 JUNE	-				- W. W. W.	-	South Stock			Control of the Contro	Service Brown	A	- A					
9 JULY	0.85	0.21	41.2	34.7	19.9	4.1	19.4	38.5	0.1	83.0	Acres 1						100	
5 AUG	3.36	0.11	12.1	40.6	42.5	8.4	8.6	32.0	0.2	6.99	0.6	7.0	0 0	1 .	. 4	0.0	. 0	
30 AUG	1.91	0.00	21.4	37.0	38.2	3.4	20.6	12.5	3,3	51.3	11.8	6.5		23.8	2.0	2.4	300	70.0
19 OCT	0.79	0.00	20.4	16.1	63.4	0.0	25.1	12.0	0.2	46.0		0.0				0.0		0.,
MGT 13: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	M GROWTH	CUT TO 1	S-CH ST	UBBLE ONC	E, EARLY	I BLOOM	cur ro	8 CM ONCE,	E, THEN	75 CM	CUT TO 15 C	20						
14 JUNE						•												
9 JULY														7				
17 AUG	0.82		38.9	31.4	28.7	1.0	25.9	29.5	0.1	110.0	3.3	5.0	0.0	10.8	3.			
17 SEPT	1.26		27.1	31.6	38.7	2.6	17.3	20,0	0.3	79.0	7.0	14.5	0.2	33.0	2.0	14.5	1.5	12.8
MCT 14: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	M GROWTH	CUT TO 1	S-CH STI	UBBLE ONC	EARLY	I BLOOM	CUT TO	8 CM ONCE,	E, THEN	PRE-BOOT	CUT TO	15 CM						
14 JUNE																		
9 JULY	67.0	0.26	54.2	26.8	15.2	3.9	32.7	36.5	0.1	121.5		0.0	•		•			
17 AUG	1.89	0.10	25.6	35.4	35.3	3.7	20.3	25.0	0.3	76.9	2.0	4.7	4.0	5.3	3.7	A.7	1.3	6.3
1 SEPT	1.66	0.04	18.3	21.2	58.2	2.2	11.6	15.0	0.3	41.8	0.0	7.5	0.5	2.5	4.0	7 8	1	10.0
19 OCT	1.05	90.0	16.3	17.0	65.9	3.8	18.1	12.5	1.6	43.3	11.1	7.0	1.5	27.3	4.0	7.0	1.3	7.5
MGT 15: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	M GROWTH	CUT TO 1	S-CH ST	UBBLE ONC	E, EARLY	PLOOM	CUT TO	8 CM ONCE,	E, THEN	BOOT CUT	TTO 8 CM							
14 JUNE	19.16	0.25	3.0	57.5	31.7	7.8	2.0	38.7	0.2	10.9		0.0				0.0		
9 JULY		The state of the							Section of the section of									77.00
23 AUG	0.75	0.00	43.1	31.2	25.6	0.1	44.5	12.0	10.0	119.3	8.3	2.5	8.5	15.3	8.0	2.5	6.8	. 0
19 OCT	C 20	00.0	28 0	16.0	6 93	00	7 76	2 7	0 0	1.4 2								

TABLE XII

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF MILLHY 99 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

DATE	RATIO	RATIO	DRY MA	DRY MATTER CONT	TRIBUTED BY) BY	A F	TILLER ME	CULM AND		AXII	LARY TIL	LER MERT	STEMS	V.	APV TIT	Tan aar	ETWG
3. 00 00 00	ABOVE	BELOW	STEMS LEAV	LEAVES		CUT	MEAN HEIGHTI/	NUMBER	MIN.	HEIGHT	HEIGHT	MEAN MINBER HEIGHT HEIGH	MIN.	METGHT.	1.455	MEAN MINGRE METCHT HETCH	MIN.	MAX.
T 3. 00 me or				1			-	n/m2		- 65		n/m2		- CE -	11	n/m2	1	CH -
ו ב: שט-נה נג	TOWITH CU	T TO 15	MGT 2: 90-CM GROWTH CUT TO 15-CM STUBBLE	BLE														
21 JUNE	2.32	0.28	23.1	48.3	22.3	6.3	21.1	28.5	0.3	79.0		0				0		
8 JULY	2.89	90.0	17.9	48.2	31.1	2.7	12.4	28.5	0.2	46.1	2.2	. 4		. 4				
4 AUG	0.91	0.04	34.4	31.0	33.1	2.5	26.3	33.0	2	1 571	12 6		2 4	2007	0.11	9 0	200	10.
6 SEPT	0.81	0.07	29.2	23.6	6 79	0	27 6	23.0			200	0.0	2.0	40.0	0.0	0.0	7.8	17.8
100		000	100	2000	3000		0.17	0.67	0.0	72.6	1.7	0.8	0.4	10.0	0.8	0.00	4.1	11.8
1700	1.30	10.0	7.71	14.0	0.89	2.1	16.9	17.5	3.00	40.5	4.4	5.5	0.8	11.3	8.0	5.5	3,3	12.
MGT 5: EARLY BLOOM CUT TO 8-CM STUBBLE	LOOM CUT	TO 8-C	M STUBBL	ы														
29 JUNE	0.81	0.10	50.0	40.0	0.6	6.0	73.4	23.5	0.3	152.5		0.0				0		
1 AUG	1.03	0.05	37.9	38.2	22.8	1.2	29.7	23.0	0.3	107.9	21.0	8 8	1.3	2 95	3 6	2 4		
6 SEPT	0.93	0.03	31.2	28.1	39.5	1.2	16.9	25.7	0.4	83.0	2.9	2.7	1.6	000				11.
6 OCT	1.64	00.00	11.6	19.2	68.7	0.5	7.4	12.0	0.3	36.5	4.4	2.5	1:0	7.8	2.0	2.5	יים מי	6.3

TABLE XIII

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT IVDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF SWEET SIOUX III AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

	ABOVE			0.14	HZ SAH	PLE						111	0	TOTAL	77			
	TIELD.	ABOVE B	BELOW	ABOVE	NES	ABOVE +	BELOW	YTELD	PLANT	ST	26.5	D W	DRY MATTER AB	NITROGEN BOVE BEL	SELOW	ABOVE	AROVE BELL	DEX
DATE	M2 SAMPLE	CUI	CUT	CUI	CUI	COL	COT	GROUND	HEIGHT	LIVE D	DEAD	LIVE DIC		CUT	CUT	8	CROUND	CGT
	1 1 1 1		1	kg/	eq	1 1 1		1 1	100	- 11/187	1		- 7					
MGT 1: 50-	50-CM GROWTH CUT TO 15-CM	CUT TO	15-CM S	TUBBLE														
11 JUNE	879	111	949	1130	176	1241	822	2063			c			90	000	30.0	,	0
18 JUNE		353	874	926	196	1310	1069	2379	88		0 0			200	2007	6.30	2.33	0.00
28 JUNE		337	933	1313	06	1650	1023	2673	3) W		3	270	76.T	207.7	2.70	20.0
13 JULY	848	305	578	915	384	1220	962	2181	. 19		070			200	L./.7	2.64	20.00	0.35
28 JULY	530	197	1543	631	154	829	1697	2526	2 5		20			20	20.00	£7.7	7.32	0.12
9 AUG	392	79	1428	665	06	578	1518	2095	200		21			15	20.00	1.00	1.77	0.00
23 AUG	1156	172	946	909	65	779	1008	1787	63	N	26			100	1.40	1 23	4.15	0.00
7 SEPT	785	225	1275	696	09	1194	1335	2528	24		33			30	1.76	1 70	1 74	0.0
14 OCT	1699	764	1589	1055	54	1819	1643	3462	53	231 1	124	63 7	75.9 3	3.05	2.98	2.18	2.23	0.00
GT 2: 90-	MGT 2: 90-CM GROWTH CUT TO 15-CM S	CUT TO	15-CH S	TUBBLE														
16 JUNE	2686	1014	1141	1744	224	2757	1365	4123	95		C					4 26	18 4	20 0
2 JULY	1871	886	1446	1647	172	2533	1618	4151			65			22	1.25	6. 22	4 60	10
21 JULY	1635	976	1641	1466	175	2442	1816	4258	96		07			25	00	2 84	2 97	71.0
12 AUG	1546	655	1854	1308	117	1964	1971	3935	81		10	1		9	1.44	3 81	3 07	71.0
1 SEPT	1397	902	1985	1363	48	2069	2033	4102	82		83	0		99	1.25	3 62	3 60	010
19 OCT	2637	1184	1579	1328	0	2512	1579	4090	88	285 1	188	65 73	75.2	1.97	0.89	2.04	2.04	0.00
GT 3: PR	MGT 3: PRE-BOOT CUT	TO 15-CM STUBB	M STUBB	1.8														
28 JUNE	8329	3383	1267	3136	160	6510	1625	7055			5	00						
5 AUG	5009	2361	1320	1726	83	4087	1403	0695	184			207		200	0.58	6.33	6.45	0.11
14 SEPT	3972	1902	1981	1737	36	3638	2016	5655	140	253	172	60		98-1	0.83	3.66	3.65	0.07
GT 4: BO	MGT 4: BOOT CUT TO 8-CM STUBBLE	-CM STU	BBLE															
2 JULY	10192	9813	1163	5780	158	15593	1320	16914						28	0.61	11.76	11.79	0.03
20 AUG	8429	8658	1066	3764	4	12422	1069	13491	220	140	97	02 09		.52	0.58	7.09	7.09	0.00
12 OCT	3160	1557	1826	1564	54	3122	1880	5005	110				75.2 1	1.71	96.0	2.74	2.79	0.0
ICT 5: EAL	MGT 5: EARLY BLOOM CUT TO 8-CM STU	UT TO 8.	-CM STU	BBLE														
12 JULY	15646	10211	822	3473	126	13685	746	14632	248	86	22	85 69	69.3 0.	0.65	0.23	5.69	5.69	0.00
9 SEPT		4772	1622	2325	22	7097	1643	8740	223		18			11	0.57	4.59	4.59	0.0

TABLE XIII (Continued)

AVES SAMPLE AVES STEAMS + LEAVES YIELD BELOW ABOVE BELOW ABOVE CUT CUT CUT CUT CUT CUT 179 1595 1326 2921 165 3064 1482 4546 165 3064 1482 4546 165 1582 1690 3272 104 2992 1701 4693 36 1783 1188 2971 ONCE, THEN 90 CM TO 15 CM ONCE, 154 631 1259 1891 208 1216 1159 2375 194 1482 1356 2838 62 2004 1338 3543 29 1299 921 1949 75 2648 1912 4560 ONCE, THEN PRE-BOOT CUT TO 15 CM 147 9835 1927 11761 100 5960 2052 8012 90 1299 2110 3409 104 6824 1557 8381 275 1500 1533 3033 100 1360 1392 2752 72 1389 1629 4571 1 0NCE, THEN BOOT CUT TO 8 CM 118 12630 1371 14000 22 6663 1453 8116		PLANT STEMS MATTER HEIGHT LIVE DEAD LIVE DIGEST	cm - n/m ²				301 81	307 199	242	258 97	THEN 50 CM TO 15 CM, TWICE, THEN 75 CM			317 75		298 212	64 176 136 56				140 156 47	173 242 221 51 72.4	15 CL 212 34	to men pure of the ca			188	84 274 210 57			167 253 16 94
O.14 HZ SAMPLE	YIELD	ABOVE									CM ONCE,		¥.		ģ	1000			TO 15				20.02	-						2	
O.11 D.12 D.12 D.12 D.13 D.13 D.13 D.13 D.13 D.23 D.23 	VES SAMPLE	BELOW ABOVE CUT CUT	ad/								5		631	1216	1482	2004	1029	2648	ONCE, THEN PRE-BOX		9835	1200	E		6876	1500	1360	1389	T# 7847 T	ONCE, THEN BOOT	12630
STE CUT TO 1216 470 1252 588 443 1125 3495 3495 3495 3495 3495 3495 3495 349) SMS	BELOW /	kg/	15-CM STUBBLE							CUT TO 15-CM STUBBLE C								15-CM STUBBLE C				15-CM STITIBREE						CTOT	15-CH ST	
ABOVE CUT TIELD, TIELD, CUT TIELD, CUT TIELD, CROWTH GROWTH GROWT		DATE		MGT 6: 50-C	11 JUNE	24 JUNE	13 JULY	2 AUG	26 AUG	S OCT	MGT 7: 50-CM	11 JUNE	30 HINE	13 JULY	30 JULY			12 oct	T 8: 90-C	16 JUNE	ZI JULY	30 AUG	T 9: 50-C		1 JULY	19 JULY	5 AUG	26 AUG	3	MCT 10: 50-CM	11 JUNE 8 JULY 23 AHG

TABLE XIII (Continued)

	ABOVE			0.14	U.14 ME SARFLE	97,						NT.	IN-VITEO	TOTAL	N.			
	TIED.		BELOW	5 00	BELOW	ABOVE +	STEMS + LEAVES ABOVE BELOW	ABOVE					MATTER /	ABOVE BEL	BELOW	ABOVE	ABOVE BE	BELOW
DATE	MZ SAMPLE	B	5	COL		COL	COT	GROUND		LIVE	3	LIVE D	DIGEST. CUT	5	COL	5	GROUND	COL
				187				1	5	- 1/15		1	1	1				
MGT 11: 50	50-CM GROWTH CUT 15-CM STUB	CUT 15-	CH STU	BBLE ONC	BLE ONCE, BOOT		CUT TO 8 CM ONCE, THEN	CE, THEN	75 CM	CUT TO 15 CM	15 CM							
11 JUNE	1084	149	721	1363	188	1512	910	2422		226	0	100			2 20	9 73	2 16	77.0
8 JULY								1			,	204		•	7.50	7107	3.10	0.44
2 AUG		535	1665	1198	122	1733	1787	3520	. 6	350	135	7.		177 1				
O AUG	2721	1227	1642	1970	75	3197	1518	4715	000	310	146	2 5		1.04	0.33	7.85	3.08	0.22
19 OCT	2068	854	1866	1446	5 %	2300	1920	4219	72	371	269	57		2.19	1.13	4.31	4.37	0.00
MGT 12: 50	50-CM GROWTH	CUT TO	15-CH S	STUBBLE	TWICE,	BOOT CUT	TO 8	CM ONCE.	THEN 75		T TO 15	_						5
11 JUNE	976					The Carlo												
18 TIME								1	. 7									
D TITLE		7050																
13 ATC	1160	77.6	577	3302	200	10419	104	11184	168	145	32		70.2	1.35	0.70	6.47	6.47	0.00
DOW C		047	1007	12/9	93	2325	1600	3925	81	258	140		77.5	2.60	1.33	3.07	3.29	0.22
I SEPT		298	1471	1030	75	1328	1546	2874	70	366	145	71 7	78.3	2.85	1.59	2.82	2.98	0.16
12 OCT		1421	1206	1327	22	2748	1227	3975	80	215	86		8.97	1.92	1.19	1.93	1.94	0.01
MGT 13: 50-CM	O-CM GROWTH	CUT TO	15-CM 8	STUBBLE	ONCE, E.	EARLY BLOOM CUT		TO 8 CM	ONCE,	THEN 75	CM CUT	TO 15 CM	8					
11 JUNE	946																	
V. TIT. 4	Q.		1000						1									
20 ATIG		0716	1507	1841	33.	3000	1630		. 7.0									100
7 5004		620	1001	1111	4 6	2550	1000	2259	747	133	16	3		1.82	0.88	3.69	3.74	0.05
1 200	0757	250	TOOT	277	200	COT	1930	3620	99	371	188	99		2.56	0.92	2.65	2.71	90.0
130 6		=	7808	400	6/	775	1887	2662	36	398	210	99		2.73	1.10	0.92	1.06	0.13
14: 5(MCT 14: 50-CM GROWTH CUT TO	CUT TO	15-CH ST	UBBLE	ONCE, E.	EARLY BLOOM CUT		TO 8 CM	ONCE,	HEN PR	THEN PRE-BOOT	כעד דט	TO 15 CM					
1 JUNE																		
14 JULY		8389	858	2849		11238	1023	12260	211	140	16	. 00	9 99	00 0	0.33	6.07		
O AUG		2278	1267	1977		4255	1302	5558	137	215	108		12.7	1 04	0.05	20.0	20.0	00.0
12 OCT	3885	2684	2013	2418	19	5102	2074	7176	116	318	191		75.1	1.80	0.69	4.28	29.6	500
MCT 15: 50-CM	O-CM GROWTH	כעד דט	15-CH 8	STUBBLE	ONCE, E	RARLY BLOOM CUT		35		THEN BOOT CUT		10 8 CM						
		111	789	1290	190	1401	980	2381		274	0	100			2.20	2 50	4 13	75 0
14 JULY	8934	•									1				2	60.0	3116	5.0
	6742	6178	1345	3387	43	9266	1389	10954	196	221	118	65	55.1	1.76	0.61	, y y	, KK	
100 6	1117	273	1428	116	72	1184	1500	2684	53	301	135	69	78.8	2.22	1.02	1 63	1 53	300
															100			

TABLE XIV

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT IVDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF SWEET SIOUX III AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

	13.	1			7 1	9	4	20		-	0	0		0	0	0			2	2					0	0			0 -	2 6
IDEX	BELOW				1.0	0.0	0.1	0.03		0.0	0.0	0.00		0.0	0.00	0.0		6	0.0	0.02	0.0			0.0	0.00	0.0			0.0	0
AREA INDEX	ABOVE			07 6	00.0	19.5	5.74	1.67		7.45	6.71	4.09		11.06	5.94	2.96		•	6.07	5.37	1.9/	7 90	7 17	7.26	2.36	2.04			7.20	1 03
LEAF	ABOVE				2.00	2.23	2.59	1.65		7.44	6.71	4.09		11.06	5.94	2.96			6.04	5.35	1.9/	74 7	7.15	7.26	2.35	2.04			7.19	1 00
TOTAL	BELOW			1 64	1 07	1.31	1.53	1.02		1.18	0.75	0.68		0.92	0.47	0.56			1.42	0.51	50.0	00 0	1.99	1.15	0.69	0.99			0.58	0.70
TOTAL	ABOVE			2 22	2 56	2000	2.08	1.93		2.33	1.19	1.67		2.50	1.19	1.58			2.18	1.16	1.30	00 6	3.09	1.74	2.64	2.00			1.61	2.05
IN-VITRO DRY	MATTER DIGEST.	2		76.6	70.0	10.0	73.4	67.9		63.8	68.5	0.19		9.19	66.3	29.0			2.99	63.9	4.60	00 00 00	69.3	8.69	73.0	58.0			65.3	68.9
H	LIVE	-		100	07	32	2 9	76		100	100	78		100	65	21			86	81	71	100	92	82	89	53			72	63
	STEMS	m2 -		•		707	102	48		0	0	32		0	24	140		•	27	32	6	•	32	43	19	151			43	20
	LIVE	- n/m ²		07	167	126	156	161		86	145	135		151	97	140		•	191	201	2	124	334	188	140	167			105	102
	PLANT	cn.		88	108	110	97	06		190	171	174		218	232	120	,		797	159	770	83	104	123	. 89	84			192	83
YIELD	ABOVE			1901	3846	2306	4656	3699		9512	8328	5712		13783	12180	2011	TO 15 CM		0765	8270	200	4069	5554	7359	2753	2666	TO 8 CM		12605	3423
LEAVES	BELOW			825	832	1536	1887	1564		678	828	1776		797	1531	2093	SOOT CUT		1155	1351		667	965	1284	890	1141	SOOT CUT		2081	2099
STEMS +	ABOVE			2217	3016	3861	2766	2135		8834	7470	3936		12986	10649	2918	THEN PRE-BOOT CUI		4610	2583	3	3401	4589	6074	1863	1525	ONCE, THEN PRE-BOOT CUT	19761	10524	1324
LEAVES ST	BELOW			79	79	126	18	32		06	0	25		0	0	67	DNCE, TH	.:	1001	108		20	43	0	10	39	ICE, TH	•	122	25
O.14	ABOVE	- kg/h	TUBBLE	1564	1658	2070	1546	1001		3462	2634	1600	BLE	4884	2791	7400	TUBBLE OF		9777	1238	TRRIE	2124	2490	2931	1105	911	UBBLE OF	.010	3714	865
(S	BELOW		-	746	753	1410	1869	1532	BLE	588	828	1751	CM STUB	797	1531		200	.000	1010	2225	R-CM ST	617	922	1284	880	1102	8-CM ST	1403	2009	2074
STEMS	ABOVE		TO TUE	653	1356	1790	1220	1044	CM STUB	5371	4837	2336	TT TO 8-	8102	7858	7757	UT TO 1	266.1	T607	1365	CIT TO	1277	2099	3143	758	614	CUT TO		6810	459
ABOVE	YIELD, M2 SAMPLE	1	M GROWTH	1724	2504	1897	2104	1166	cur ro 8-	6412	8057	4482	Y BLOOM CI	11233	11420	6717	M GROWTH	1850	3330	1917	CM GROWTH	1921	2381	2829	1220	1409	CM GROWTH	2355	5879	951
	DATE		MCT 2: 90-CM GROWTH CUT TO 15-CM S	16 JUNE	S JULY	29 JULY	25 AUG	22 SEPT	MCT 4: BOOT CUT TO 8-CM STUBBLE	29 JUNE	4 AUG	20 SEPT	MGT 5: EARLY BLOOM CUT TO 8-CM STU	S JULY	22 AUG	170 0	MGT 8: 90-CM GROWTH CUT TO 15-CM S	16 JUNE	16 ATTC	22 SEPT	MGT 16: 90-CM GROWTH CITY TO 8-CM S	16 JUNE	S JULY	1 AUG	30 AUG	7 OCT	MCT 17: 90-CM GROWTH CUT TO 8-CM S	16 JUNE	30 AUG	7 OCT

TABLE XIV (Continued)

	ABOVE			0.14 MZ	M4 SAMPLE	PLE							-VITRO	TOT	TAL	S. 28 0 6 0		
	5	STEMS	HS	LEA	VES	STEAS +	- LEAVES	TIELD					DRY	MITE	CEN	LEAF		DEX
DATE	YIELD, H2 SAMPLE	ABOVE	BELOW	ABOVE	BELOW	ABOVE	BELOW	ABOVE	PLANT	LIVE	DEAD	LIVE	ATTER /	CUT	BELOW	ABOVE	ABOVE	BELOW
	1 1 1 1			kg/	1				5	- n/a	12 -	-						
T 18: 90	MGT 18: 90-CM GROWTH CUT TO 8-CM STI	I CUT TO	8-CH S	BBLE	ONCE, TH	THEN BOOT	CUT TO	8 CM										
16 JUNE	2789	1184	585	1805	54	2989	639	3627	80	102	c	100	6 70	200				
18 JULY	7025	5335	743	2870	0	8206	743	8768	194	118		32	72.7	67.7	C7.T	20.4	4.08	0.0
30 AUG	7537	4765	1973	2791	11	7556	1984	9540	101	140		25	1.5.1	76-7	66.0	5.15	5.15	0.0
7 OCT	1256	509	1593	822	14	1331	1607	2939	88	113	151	41	73.9	2.01	0.63	2.18 1.88	5.18	0.0
r 19: 90	MCT 19: 90-CM GROWTH	I CUT TO 15-CM		STUBBLE	ONCE, T	THEN BOOT	r cur to	8 CM								3	76.7	2
16 JUNE		1208	844	1875	105	3083	950	2507	88	122	•	200	20 0					
18 JULY	7514	4105	538	2465	0	6570	538	7108	188	113	34	200	13.9	2.33	77.7	4.14	4.29	0.16
30 AUG	1	6358	1155	3053	7	9411	1162	10574	106	120	97	0 9	200	1.10	0.63	18.8	4.87	0.00
7 OCT	1120	746	1180	847	1	1593	1188	2781	86	140	108	20 00	0.00	1.81	0.50	2.63	5.63	0.00

TABLE XV

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF SWEET SIOUX III AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

SO-CM GROWTH CUT 50-CM GROWTH CUT 10.55 TUNE 10.55 TUNE 2.77 TUNE 2.77 TUNE 3.88 TULY 5.14 WUC 3.51 WUC 3.51 WUC 3.51 WUC 1.38 90-CM GROWTH CUT 1.38 90-CM GROWTH CUT 1.38 PO-CM GROWTH CUT 1.38 1.156 WUC 1.156 WUC 1.02 WUC 1.02 WUC 1.02 WUC 1.03 PRE-BOOT CUT TO 0.77 EPT 1.01 BOOT CUT TO 0.77 EPT 1.01 BOOT CUT TO 0.77 EPT 1.01 BOOT CUT TO 0.34 CT ULY 0.34		RA	RATTO	DRY	DRY MATTER CO	NTRIBU	TED BY		TILLER M	PIMARY CULM AND FILLER MERISTEMS		AXII	LARY TIL	LER MER	STEMS	The state of the s	1400 411	1 00 00	98.00
TO 13—CAS STATES AND ALL STATES AND	DATE	CUT	CUT	STEMS		STEMS	W CUT	MEAN HEIGHT!	NUMBER		HEIGHT	HEIGHT	NUMBER	MIN.	MAX.	MEAN	MANAGER	MIN.	MAX.
TTO 15-CM STUBBLE 0.48 5.46 5.46 5.49 31.3 8.6 2.3 23.0 0.5 8.4				1		2	1 1	CE	n/m2		- 68 -		n/m2		- CB -	THOTOUT -		netron	HEIGH
0.28 5.4 54.8 31.3 8.6 2.3 22.0 0.5 8.4 0.0 0.0 0.0 0.0 0.0 0.2	MGT 1: 50-CM	GROWTH CL	IT TO IS	S-CM STU	IBBLE														
0.43 15.6 41.9 33.6 81.9 4.2 281.5 0.13 10.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		10.55		5.4	54.8	31.3	8	2.3	23.0										
0.10 12.6 49.0 34.8 3.5 4.4 23.5 0.1 17.2 0.0 . 0.0 0.0 . 0.0 0.0 . 0.0 0.0 . 0.0 0.0 . 0.0 0.0 0.0 . 0.0 . 0.0 0.0 . 0.		2.77		15.6	41 0	32.6			23.0	0.0	4.0		0.0				0.0		
1.11 15:0 44.2 25.0 611.1 6.1 24.3 20.0 0.1 0.0 0.2 1.0 0.0 0.2 1.0 0.0 0.2 1.0 0.0 0.2 1.0 0.0 0.2 1.0 0.0 0.2 1.0 0.0 0.2 1.0 0.0 0.2 0.0 0.2 0.0 0.2 0.0 0.0 0.2 0.0 0.0		2 88	010	13 6	2007	20.00		7.6	28.5	0.1	17.2		0.0				0.0		100
0.06 3.7 23.6 68.3 4.4 3.6 21.0 0.2 23.3 0.5 7.0 0.2 1.0 3.5 7.0 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0		000		14.0	25.0	24.0	3.5	4.4	23.5	0.3	20.0	•	0.0				000	•	
0.06 9.7 8 25.0 61.1 6.1 5.7 91.5 0.2 23.3 0.5 6.0 0.2 11.1 5.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		6.30	11.1	15.0	7.44	22.7	18.1	4.7	45.5	0.1	24.3	4.0	7.0	0 0					
0.06 3.7 23.6 68.3 4.4 3.6 21.0 0.3 14.0 1.9 10.0 0.2 2.1 1.0 10.0 0.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5		5.14	0.10	7.8	25.0	61.1	6.1	5.7	31.5	0.2	23.3	2	2	4 6	7.0	0.0	0.7	1.0	5.9
0.06 9.6 33.6 53.3 3.5 6.1 14.0 0.3 14.4 1.2 6.0 0.5 2.0 10.0 0.3	9 AUG	6.46	90.0	3.7	23.6	68.3	4.4	3.6	21.0	0	16.0	100	0.00	7.0	1:1	4.0	0.9	0.0	11.2
0.05 8.0 34.8 54.4 2.7 6.2 19.0 0.3 16.2 1.2 0.0 0.5 58.3 12.8 10.5 0.3 5.7 3.5 6.0 0.4 0.9 0.3 22.1 30.4 45.9 1.5 18.3 21.5 0.6 58.3 12.8 10.5 0.3 30.5 2.7 3.5 6.0 0.4 0.9 0.3 22.1 30.4 45.9 1.5 18.3 21.5 0.6 58.3 12.8 10.5 0.3 30.5 2.0 10.3 0.5 0.5 0.0 0.4 0.5 0.3 30.5 2.0 10.3 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	23 AUG	3.51	90.0	9.6	33.6	53.3	3.5	6.1	14.0	200	7 71		70.0	0.2	9.0	1.0	10.0	0.3	2.8
C 22.3 43.3 28.6 5.8 4.6 29.0 0.1 17.1 0.0 0.3 30.5 2.0 10.5 0.3 30.5 2.0 10.5 0.5 0.5 0.3 12.8 10.5 0.3 30.5 2.0 10.5 0.5 0.5 0.5 10.5 0.3 30.5 2.0 10.5 0.5 0.5 0.5 10.5 0.3 30.5 2.0 10.5 0.5 0.5 0.5 0.3 10.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5	7 SEPT	4.44	0.05	8.0	34.8	7 75	2 2	6 9	0.00	2.0	14.4	7.7	0.0	0.5	2.7	3.5	0.9	4.0	6.9
TO 15—CM STUBBLE 1.0.1 2.2.7 34.3 28.6 5.8 4.6 29.0 0.1 17.1 2.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	14 OCT	1.38	0.03	22.1	30.6	46.0	1	***	19.0	5.0	16.2	3.7	3.3	1.7	6.7	2.7	3.3	1.3	4.0
Tro 13-CM STUBBLE Co. 22.3 43.3 28.6 5.8 4.6 29.0 0.1 17.1 Co. 22.3 43.3 28.6 5.8 4.6 29.0 0.1 17.1 Co. 22.3 43.3 28.6 3.8 4.6 12.2 28.0 0.1 34.7 Co. 22.3 1.5 1.0 4.0 9.0 1.5 4.0 1.5 0.1 0.0 0.1 17.1 Co. 22.2 34.3 34.5 34.5 34.5 34.5 34.5 34.5 34.5				1		17.7	T.J	10.3	27.5	9.0	58.3	12.8	10.5	0.3	30.5	2.0	10.5	0.5	3 4
0.20 22.3 43.3 28.6 5.8 4.6 29.0 0.1 17.1 . 0.0 1.5 1.0 4.0 9.0 1.5 4.0 1.5 0.0 0.1 1.5 1.0 4.0 9.0 1.5 4.0 1.5 0.0 0.1 1.5 1.0 4.0 9.0 1.5 4.0 1.5 0.1 0.1 1.5 0.0 0.4 11.5 4.0 1.5 1.0 1.5 1.0 1.5 0.0 1.5 0.0 0.1 1.5 0.0 0.4 11.5 4.0 1.5 1.0 1.5 0.0 0.1 1.5 0.0 0.1 1.5		GROWTH CU	T TO 15	-CM STU	BBLE													3	
0.12 21.2 39.3 35.5 4.0 8.2 28.0 0.1 17.1 2.0 0.0 i. 4.0 9.0 1.5 4.0 1.5 4.0 0.0 0.1 2.7 34.5 39.3 35.5 4.0 12.3 23.7 0.2 40.8 3.4 3.0 0.4 11.5 4.3 3.0 1.7 7.3 0.6 0.0 0.4 11.5 4.3 3.0 1.7 7.3 0.6 0.0 0.4 11.5 4.3 3.0 1.7 7.3 0.8 0.0 0.4 11.5 4.3 3.0 1.7 7.3 0.8 0.0 0.0 0.0 0.1 11.7 2.3 1.5 0.0 0.0 0.0 0.4 11.5 4.3 3.0 1.7 7.3 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	16 JUNE	2.25	0.20	22.3	£ . £ 9	28 6	or ur	7 7	000										
0.10 22.7 34.5 33.8 4.0 12.3 22.0 0.1 34.7 2.0 1.5 1.0 4.0 9.0 1.5 4.0 1.7 0.0 0.0 0.1 0.0 0.0 0.1 0.0 0.0 0.0 0.1 0.0 0.0	2 JULY	1.84	0.12	21 2	30.0	36.0	0.7	0 0	29.0	0.1	17.1	•	0.0		•		0.0		
0.05 16.5 33.2 4.0 12.3 23.7 0.2 40.8 3.4 3.0 0.4 11.5 4.3 3.0 1.7 0.8 0.0 0.0 12.3 2.7 0.2 40.8 3.4 3.0 0.4 11.5 4.3 3.0 1.7 0.8 0.0 0.0 15.5 33.6 49.3 1.6 9.5 26.3 0.3 32.3 2.7 9.3 0.4 10.1 3.7 7.3 0.8 0.0 0.0 29.6 33.6 36.8 0.0 21.4 26.5 0.3 80.0 11.4 4.0 0.8 45.5 2.5 4.0 2.3 1.5 0.0 0.0 29.6 33.6 36.8 0.0 21.4 26.5 0.3 108.5 0.0 0.8 45.5 2.5 4.0 2.3 1.5 0.0 0.0 41.8 31.7 25.1 1.4 39.9 14.0 0.2 112.4 54.8 3.0 0.0 82.6 2.5 3.0 0.0 0.0 0.0 33.4 30.6 35.2 0.8 28.3 23.5 0.2 94.0 20.0 10.5 0.3 66.3 5.5 10.5 0.8 1.5 0.0 0.0 64.2 27.9 7.9 0.0 105.8 113.0 0.6 199.8 115.3 1.5 83.4 147.1 1.5 1.5 1.5 0.0 0.0 0.0 64.2 27.9 27.5 1.1 73.8 115.3 1.5 83.4 147.1 1.5 1.5 0.0 0.0 0.0 64.2 27.9 27.5 1.1 73.8 115.3 1.5 83.4 147.1 1.5 1.5 0.0 0.0 0.0 64.2 27.9 27.5 1.1 73.8 115.3 1.5 83.4 147.1 1.5 1.5 0.0 0.0 0.0 0.0 64.2 27.9 27.5 1.1 73.8 115.3 1.5 83.4 147.1 1.5 1.5 0.0 0.0 0.0 0.0 64.2 27.9 27.5 1.1 73.8 19.2 20.5 0.3 68.8 3.5 20.5 0.6 0.0 0.0 0.0 64.2 27.9 1.0 0.0 1.8 238.8 0.0 0.0 54.2 27.9 1.0 0.0 12.5 5.1 210.7 93.4 7.5 5.3 209.2 2.0 7.5 0.4 0.0 0.0 0.0 54.2 26.9 18.7 0.2 91.0 12.5 5.1 210.7 93.4 7.5 5.3 209.2 2.0 7.5 0.4	21 JIII.Y	1 56	100	2000	20.00	20.00	0.6	2.8	28.0	0.1	34.7	2.0	1.5	1.0	4.0	0.6	1.5	VV	12.0
0.00 15.5 33.2 47.3 2.9 7.8 27.3 0.2 33.7 3.3 7.3 0.4 10.1 3.7 7.3 0.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0		1000	0.10	7.77	74.0	38.8	4.0	12.3	23.7	0.5	40.8	3.4	3.0	0.4	11.5	4.2			74.0
0.00 29.6 33.6 49.3 1.6 9.5 26.3 0.3 32.3 2.7 9.3 0.4 8.5 3.7 7.3 0.8 0.0 0.0 29.6 33.6 36.8 0.0 21.4 26.5 0.3 80.0 11.4 4.0 0.8 45.5 2.5 4.0 2.3 1.5 15-CM STUBBLE 0.13 40.2 39.7 17.7 2.3 36.0 15.5 0.3 108.5 7.0 0.0 0.8 45.5 2.5 4.0 2.3 1.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0		7.00	0.00	16.5	33.2	47.3	2.9	7.8	27.3	0.2	33.7	3.3	7.3	40	200	200	200	7.7	0.0
0.00 29.6 33.6 36.8 0.0 21.4 26.5 0.3 80.0 11.4 4.0 0.8 45.5 3.7 9.3 1.5 15-CM STUBBLE 0.13 40.2 39.7 17.7 2.3 36.0 15.5 0.3 108.5 7.0 0.0 0.8 45.5 2.5 4.0 2.3 15-CM STUBBLE 0.13 58.0 34.1 6.9 1.0 63.2 19.0 0.2 144.5 5.0 10.5 0.3 66.3 5.5 10.5 0.8 1.5 0.00 64.2 27.9 7.9 0.0 105.8 13.0 0.6 199.8 115.3 1.5 83.4 147.1 1.5 1.5 0.6 0.01 350.0 41.8 31.2 31.3 36.4 1.1 22.9 27.5 1.1 73.8 19.2 20.5 0.3 68.8 3.5 20.5 0.6 10 8-CM STUBBLE 10 8-CM STUBBLE 10 8-CM STUBBLE 10 9-CM S		2.34	0.03	15.5	33.6	49.3	1.6	9.5	26.3	0 3	22 2				707	7.5	1.3	0.8	7.7
15-CM STUBBLE 0.13		1.13	0.00	29.6	33.6	36.8	0.0	21.4	26.5	0.0	80.0	11.7	2.4	4.0	2.0	3.7	6.3	1.5	7.2
0.13 40.2 39.7 17.7 2.3 36.0 15.5 0.3 108.5 . 0.0 0.0 27.0 82.6 2.5 3.0 0.6 0.0 0.0 41.8 31.7 25.1 1.4 39.9 14.0 0.2 112.4 54.8 3.0 27.0 82.6 2.5 3.0 0.6 0.0 0.0 0.0 41.8 31.7 25.1 1.4 39.9 14.0 0.2 112.4 54.8 3.0 0.3 0.3 66.3 5.5 10.5 0.8 18.7 18.1 18.1 18.1 18.1 18.1 18.1 18	T 3: PRE-BO	NOT CITY TO	15.00	CTIBBIT							2.00	****	2.	0.0	45.5	2.5	0.4	2.3	2.8
0.13 40.2 39.7 17.7 2.3 36.0 15.5 0.3 108.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0			1	STOODTO															
0.06 41.8 31.7 25.1 1.4 39.9 14.0 0.2 112.4 54.8 3.0 27.0 82.6 2.5 3.0 0.6 0.0 0.0 2.2 33.4 30.6 35.2 0.8 28.3 23.5 0.2 94.0 20.0 10.5 0.3 66.3 5.5 10.5 0.6 15.0 0.0 15.2 15.0 15.2 15.2 15.2 15.2 15.2 15.2 15.2 15.2	28 JUNE	1.02	0.13	40.2	39.7	17.7	2.3	36.0	15.5	60	100 5								
0.02 33.4 30.6 35.2 0.8 28.3 23.5 0.2 94.0 20.0 10.5 0.3 66.3 5.5 10.5 0.6 18 18 21 8 18 18 18 18 18 18 18 18 18 18 18 18	S AUG	0.77	90.0	41.8	31.7	25.1	1.4	30.0	16.0	200	112 4		0.0				0.0		
0.13 58.0 34.1 6.9 1.0 63.2 19.0 0.2 144.5 0.0 0.0 64.2 27.9 7.9 0.0 105.8 13.0 0.6 199.8 115.3 1.5 83.4 147.1 1.5 1.5 0.8 0.0 0.03 31.2 31.3 36.4 1.1 22.9 27.5 1.1 73.8 19.2 20.5 0.3 68.8 3.5 20.5 0.6 10.8 54.2 26.9 18.7 0.2 91.0 12.5 5.1 210.7 93.4 7.5 5.3 209.2 2.0 7.5 0.4	14 SEPT	16.0	0.05	33.4	30.6	35.2	8.0	28.3	23.5	0.2	96.0	20.0	0.0	27.0	82.6	2.5	3.0	9.0	5.3
0.13 58.0 34.1 6.9 1.0 63.2 19.0 0.2 144.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	T 4: BOOT C	TO 8-C	M STUBB	H								0.00	2007	0.5	60.3	0.0	10.5	0.8	11.0
0.00 64.2 27.9 7.9 0.0 105.8 13.0 0.6 199.8 115.3 1.5 83.4 147.1 1.5 1.5 0.8 0.0 0.03 31.2 31.3 36.4 1.1 22.9 27.5 1.1 73.8 19.2 20.5 0.3 68.8 3.5 20.5 0.6 10.8 5.4 stubble. 10 8-CM STUBBLE 0.16 69.8 23.7 5.6 0.9 158.4 8.0 1.8 238.8 0.0 0.0 5.3 209.2 2.0 7.5 0.4 0.0 5.4 2.5 5.1 210.7 93.4 7.5 5.3 209.2 2.0 7.5 0.4	2 JULY	0.58	0.13	58.0	14.1	9		63 63											
0.03 37.2 47.3 36.4 1.1 22.9 27.5 1.1 73.8 115.3 1.5 83.4 147.1 1.5 1.5 0.8 10.0 0.0 0.3 81.2 20.3 68.8 3.5 20.5 0.6 TO 8-CM STUBBLE 0.0 15 69.8 25.7 5.6 0.9 158.4 8.0 1.8 238.8 0.0 0.0 54.2 26.9 18.7 0.2 91.0 12.5 5.1 210.7 93.4 7.5 5.3 209.2 2.0 7.5 0.4	20 AUG	0.43	200	6. 43	27.0	100	0 0	2.50	19.0	0.2	144.5	•	0.0	•	•		0.0		
TO 8-CM STUBBLE 1.1 (3.8 19.2 20.5 0.3 68.8 3.5 20.5 0.6 1.10 8-CM STUBBLE 0.11 69.8 25,7 5.6 0.9 158.4 8.0 1.8 238.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	12 OCT	1.01	0.03	31.2	31.3	36.6	3-	22.0	13.0	9.	199.8	115.3	1.5	83.4	147.1	1.5	1.5	0.8	1.8
TO 8-CM STUBBLE. 0.16 69.8 23.7 5.6 0.9 158.4 8.0 1.8 238.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0					-		4 4 4	6.77	6.17	1:1	/3.8	19.2	20.5	0.3	68.89	3.5	20.5	9.0	7.3
0.34 0.16 69.8 23.7 5.6 0.9 158.4 8.0 1.8 238.8 . 0.0 . 0.0 0.0 0.51 0.01 54.2 26.9 18.7 0.2 91.0 12.5 5.1 210.7 93.4 7.5 5.3 209.2 2.0 7.5 0.4	T SE EARLY	BLOOM CUT		M STUBBL	3														
SEPT 0.51 0.01 54.2 26.9 18.7 0.2 91.0 12.5 5.1 210.7 93.4 7.5 5.3 209.2 2.0 7.5 0.4	12 JULY	0.34	0.16	8.69	23.7	5.6	6.0	158.4	0		930 0								
200, 2.0 7.5 0.4 7.5 5.3 209,2 2.0 7.5 0.4	9 SEPT	0.51	0.01	54.2	26.9	18.7	0.2	0.10	12.6		230.0		0.0				0.0		
								-		7.0	2.015	75.4	7.5	5.3	206.2	2.0	7.5	4.0	6.2

TABLE XV (Continued)

HAK, HELMH INMER HEIGHT HEIGHT NUMBER HEIGHT 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		RATIO	RATIO	DRY M	CON	TRIBUTED BY	ED BY	P4 (**	PRIMARY CULM AND FILLER MERISTEMS	CULM AND	0.5	AXTI	TARY TIT	T.ER MER	STEME	1		00 004	on a o
16.9 6.3 7.5 32.0 0.2 32.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	DATE	ABOVE	BELOW	STEMS	LEAVES		CUT	MEAN HEIGHT1/	NUMBER	MIN. HEIGHT	871	MEAN	NUMBER	MIN.	MAX.	MEAN	NIMBER	MIN.	MAX.
96.9 6.3 7.5 32.0 0.2 32.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0							1	СШ	n/m2		- cm	1 1 1	n/m2		- 69 -		n/m2		CB
86.9 6.3 7.5 32.0 0.2 31.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1GT 6: 50-CM	GROWTH CU	T TO 15	-CM STUI	BELE ONCE,		30-CM	UT TO 15											
36.9 6.3 7.5 32.0 0.2 32.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	11 JUNE																		
60.4 8.1 2.8 24.0 0.2 52.7 1.0 5.0 0.2 3.4.5 4.5 5.0 0.8 4.5 5.1 0.0 0.8 4.5 5.1 1.0 5.0 0.2 3.4.2 2.5 7.0 0.8 4.5 5.1 1.0 5.0 0.2 3.4.2 2.5 7.0 0.8 4.5 5.1 1.0 0.9 0.9 0.8 4.5 14.5 14.5 12.2 24.0 0.3 4.4 5.0 1.0 5.0 0.3 24.2 2.5 7.0 0.8 4.5 14.5 12.2 24.0 0.3 4.4 5.0 1.0 5.0 0.3 24.2 2.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 0.3 24.2 24.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 1	24 JUNE	2.71	0.17	16.3	40.4	36.0													
46.2 5.1 13.7 28.6 0.2 21.8 1.0 0.0 0.3 34.8 4.5 5.0 0.8 34.8 24.5 1.0 0.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.5 1.0 0.8 34.8 24.0 0.8 34.8 24.8 24.8 24.8 24.8 24.8 24.8 24.8 2	13 THY	1 52	13	200	10.0	2000	2:0	0.7	32.0	0.2	32.2		0.0				0.0		
46.5 5.1 5.3 28.5 0.2 29.7 1.0 5.0 0.2 34.2 2.5 5.0 0.8 4.5 5.0 0.8 4.5 5.0 0.8 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5 4.5	2 4110	7.32	1:0	7.07	40.1	58.9	3.7	13.7	28.0	0.5	51.8		0.0		ALTER CO.		0.0		
34.8 2.4 14.3 23.0 0.3 54.9 10.9 7.0 0.3 34.2 2.5 7.0 0.5 40.1 1.3 12.2 24.0 0.3 49.8 6.8 14.5 0.3 24.5 4.5 14.5 0.5 0.5 4.5 14.5 0.5 0.5 4.5 14.5 0.5 0.5 24.5 4.5 14.5 0.5 0.5 24.5 4.5 14.5 0.5 0.5 24.5 4.5 14.5 0.5 0.5 24.5 4.5 14.5 0.5 24.5 4.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 0.5 24.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 1	2 AUG	2.33	0.11	14.7	33.7	46.5	5.1	5.3	28.5	0.2	29.7	1.0	5.0	0.0	00	× ×			
40.1 1.3 12.2 24.0 0.3 49.8 6.8 14.5 0.3 24.5 4.5 14.5 0.5 0.5 24.5 4.5 14.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0	Z6 AUG	1.53	0.07	25.7	37.1	34.8	2.4	14.3	23.0	0.3	54.9	10.9	7.0		34.2	200	200	000	10.1
50.4 8.1 2.8 51.0 0.3 13.8 0.4 11.0 0.2 1.0 3.5 11.0 0.5 39.9 8.8 3.0 29.5 0.2 11.4 0.2 1.0 3.5 11.0 0.5 39.9 8.8 3.0 29.5 0.2 11.4 0.2 1.0 3.0 1.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	2 OCT	2.24	0.03	18.7	39.8	40.1	1.3	12.2	24.0	0.3	49.8	6.8	14.5	0.3	24.5	6.5	16.5	0.0	10.0
60.4 8.1 2.8 51.0 0.3 13.8 0.4 11.0 0.2 1.0 3.5 11.0 0.5 40.7 6.9 8.8 1.0 29.5 0.2 11.4 0.2 11.0 3.5 11.0 0.5 40.7 6.9 8.8 1.7 0.3 34.0 2.1 2.0 1.1 4.0 3.2 2.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3	IGT 7: 50-CM	GROWTH CU	T TO 15	-CM STUR	BLE ONCE,				DNCE. TH	20	TO 15		THEN 7	2					70.0
60.4 8.1 2.8 51.0 0.3 13.8 0.4 11.0 0.2 1.0 3.5 11.0 0.5 4.4 4.7 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5.5 5	11 mine										-		THE PARTY OF	OI ES					
60.4 8.1 2.8 51.0 0.3 13.8 0.4 11.0 0.2 1.0 3.5 11.0 0.5 39.9 8.8 3.0 29.5 0.2 13.8 0.4 11.0 0.2 1.0 3.5 11.0 0.5 40.7 6.9 8.5 11.5 0.3 38.0 21. 2.0 1.1 4.0 3.5 11.0 0.5 44.4 1.6 7.3 16.5 27.7 0.3 34.0 1.0 5.3 0.2 1.0 4.8 4.0 3.5 2.0 44.4 1.5 7.3 16.3 27.5 0.5 17.3 2.2 4.7 5.3 2.9 42.4 1.5 15.3 27.5 0.5 17.3 2.2 2.4 3.5 1.0 4.8 4.0 3.5 1.0 THEN PRE-BOOT CUT TO 15 CH 15.1 1.3 90.0 13.0 0.2 179.5 0.6 10.5 0.6 90.3 13.5 10.5 1.1 15.1 1.3 90.0 13.0 0.2 179.5 1.8 156.2 19.6 10.5 0.6 90.3 13.5 10.5 1.1 15.1 1.3 90.0 13.0 0.2 179.5 1.8 156.2 19.6 10.5 0.6 90.3 13.5 10.5 1.1 15.4 1.2 50.9 22.5 0.3 18.6 4.7 15.0 0.5 12.0 3.0 13.0 0.5 24.2 1.2 50.9 22.5 0.3 18.6 13.8 8.3 0.3 3.9 5.0 8.3 0.9 44.3 9.0 5.4 27.7 20.5 0.2 20.6 1.3 8.3 0.3 2.5 4.0 11.0 0.0 44.3 9.0 5.4 27.3 0.2 20.6 1.3 86.0 12.1 17.5 0.1 68.3 6.0 17.5 0.8 17.4 1.2 27.7 22.5 0.3 169.8 1.3 17.5 0.1 153.4 5.0 13.0 0.3 25.3 0.3 45.5 21.0 0.3 154.8 51.9 13.5 0.7 133.4 5.0 14.0 0.5 25.4 17.7 0.3 45.5 21.0 0.3 154.8 51.9 13.5 0.7 133.4 5.0 14.0 0.5	TT JONE								100										
60.4 8.1 2.8 51.0 0.3 13.8 0.4 11.0 0.2 1.0 3.5 11.0 0.5 40.7 6.9 8.8 3.0 29.5 0.2 11.4 0.7 3.0 0.5 11.0 3.0 3.0 40.7 6.9 8.8 1.7 5 0.2 38.0 2.1 2.0 0.5 11.0 3.0 3.0 42.9 1.7 6.5 27.7 0.3 34.0 1.0 2.0 2.0 1.0 4.5 3.2 3.2 42.4 1.6 7.3 16.3 0.6 17.3 2.2 5.0 1.0 4.5 3.0 3.5 1.0 42.4 1.6 7.3 16.3 0.6 17.3 2.4 1.0 5.3 1.0 4.5 3.0 1.0 4.5 3.0 42.4 1.6 7.3 16.3 0.6 17.3 0.5 58.5 2.4 3.5 1.0 4.5 3.0 3.5 1.0 THEN PRE-BOOT CUT TO 15 CH 15.1 1.3 90.0 13.0 0.2 179.5	SA JUNE																		
39.9 8.8 3.0 29.5 0.2 11.4 0.7 3.0 0.5 1.0 3.0 3.0 0.5 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	30 JUNE	2.85	0.14	8.2	23.3	60.4	8.1	2.8	51.0	0.3	13.8	4.0	0.11	0.0					
40.7 6.9 8.5 11.5 0.3 38.0 2.1 2.0 1.1 4.0 3.5 2.0 3.2 4.7 4.9 4.7 6.5 2.7 0.3 34.0 1.0 5.3 0.2 1.1 4.0 3.5 2.0 3.2 4.7 6.5 22.7 0.3 34.0 1.0 5.3 0.2 1.0 4.8 4.0 5.0 2.8 4.7 1.5 15.3 2.9 4.7 5.3 2.9 4.7 5.3 2.9 4.7 5.3 2.9 1.0 4.8 4.0 5.0 2.8 1.0 4.8 4.0 5.0 2.8 1.0 4.8 4.0 5.0 2.8 1.0 4.8 4.0 5.0 2.8 1.0 4.2 4.1 5.1 1.3 90.0 13.0 0.2 179.5 19.6 10.5 0.6 90.3 13.5 10.5 1.1 1.3 90.0 13.0 0.2 179.5 19.6 10.5 0.6 90.3 13.5 10.5 1.1 1.3 90.0 13.0 0.2 179.5 18.6 4.7 15.0 0.5 12.0 3.0 15.0 0.5 12.0 15.0 15.0 15.0 0.5 12.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15	13 JULY	7.72	0.26	6.3	45.0	39.9	8.8	3.0	29.5	0.2	11.4	0.7	3.0		9 6	100	25.0		0 .
42.9 1.7 6.5 27.7 0.3 34.0 1.0 5.3 0.2 3.2 4.7 5.3 2.4 4.4 1.6 7.3 16.3 0.6 17.3 2.2 5.0 1.0 4.8 4.0 5.0 2.8 4.4 1.6 7.3 16.3 0.6 17.3 2.2 5.0 1.0 4.8 4.0 5.0 2.8 4.4 1.6 7.3 16.3 0.6 17.3 2.2 5.0 1.0 4.8 4.0 5.0 2.8 2.8 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	30 JULY	1.83	0.17	18.6	33.8	40.7	6.9	8.5	17.5	0.3	38.0	2.1	2.0	1 1				2.0	
44.4 1.6 7.3 16.3 0.6 17.3 2.2 5.0 1.0 4.8 4.0 5.0 2.8 42.4 1.5 15.5 27.5 0.5 58.5 2.4 3.5 1.0 4.5 3.0 1.0 5.8 1.0 2.8 4.2 1.0 2.8 1.0	ZO AUG	2.32	0.0	16.8	38.5	42.9	1.7	6.5	27.7	0.3	34.0	1.0		10	200	4.0	2.0	2.6	
42.4 1.5 15.5 27.5 0.5 58.5 2.4 3.5 1.0 4.5 3.0 3.5 1.0 THEN PRE-BOOT CUT TO 15 CM 15.1 1.3 90.0 13.0 0.2 179.5 0.6 90.3 13.5 10.0 13.0 13.5 1.0 24.2 1.2 50.9 22.5 1.8 156.2 19.6 10.5 0.6 90.3 13.5 10.5 1.1 58.6 2.9 8.2 22.5 0.3 18.6 4.7 15.0 0.5 12.0 3.0 15.0 0.5 BOOT CUT TO 15 CM, 50 CM CUT TO 15 CM, EACH ONCE, THEN 75 CM CUT TO 15 CM 17.4 1.2 27.7 23.5 0.2 20.6 13.9 8.3 0.3 3.9 5.0 8.3 0.9 40.0 4.0 4.5 8.1 17.5 0.1 68.3 6.0 17.5 0.8 17.4 1.2 27.7 23.5 0.3 29.9 5.4 13.0 0.5 15.3 4.0 17.5 0.8 17.5 0.8 50.4 23.5 0.3 169.8 17.5 0.1 153.4 5.0 14.0 0.5 13.5 0.8 13.7 0.3 45.5 21.0 0.3 154.8 51.9 13.5 0.7 153.4 5.0 13.5 0.8 13.5 0.8 13.5 0.7 17.5 0.8 13.5 0.8 13.5 0.7 17.5 0.8 13.5 0.8 13.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.8 17.5 0.8 17.5 0.7 17.5 0.8 17.5 0.	3 SEPT	3.84	0.07	25.3	28.7	44.4	1.6	7.3	16.3	9.0	17.3	2.2			4 0		2.0	4.5	0.5
15.1 1.3 90.0 13.0 0.2 179.5 0.0 0.0 0.2 179.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0		1.63	0.04	21.7	34.4	42.4	1.5	15.5	27.5	0.5	58.5	2.4	9.61	1.0	6.5	900	9.0	2.0	7.5
15.1 1.3 90.0 13.0 0.2 179.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	3T 8: 90-CM	GROWTH CU.	T TO 15-	-CM STUB	BLE ONCE,	THEN	PRE-BOO	E											
15.1 1.3 90.0 13.0 0.2 179.5 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	16 JUNE																		
24.2 1.2 50.9 22.5 1.8 156.2 19.6 10.5 0.6 90.3 13.5 10.5 13.5 86 2.9 8.2 22.5 0.3 18.6 4.7 15.0 0.5 12.0 3.0 15.0 0.5 88.6 2.9 88.2 22.5 0.3 18.6 4.7 15.0 0.5 12.0 3.0 15.0 0.5 88.0 0.5 12.0 3.0 15.0 0.5 88.0 0.5 12.0 3.0 15.0 0.5 12.0 3.0 15.0 0.5 12.0 15.0 0.5 12.0 3.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0 15.0 0.5 12.0	21 JULY	0.53	0.08	54.5	29.0	15.1	1.3	0.06	13.0		170 €					0.00			
17.4 1.2 27.7 23.5 0.3 13.6 4.7 15.0 0.5 90.3 13.5 10.5 11.1 BOOT CUT TO 15 CH, EACH ONCE, THEN 75 CM CUT TO 15 CM 12.0 93.3 0.0 15.0 0.5 13.0 0.5 15.0 0.5 0.0 0.5 0.0	30 AUG	0.70	0.04	43.7	30.8	24.2	1.2	20.0	22.00	10.1	156.9		0.0				0.0		
17.4 1.2 27.7 23.5 0.2 93.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	19 OCT	3,39	0.05	8.9	29.5	58.6	2.9	8.5	22.5	0.3	18.6	4.7	15.0	9 6	90.3	13.5	10.5		58.6
17.4 1.2 27.7 23.5 0.2 93.3 . 0.0 . 3.9 5.0 8.3 0.9 44.3 9.0 5.4 27.3 0.2 20.6 1.3 8.3 0.3 3.9 5.0 8.3 0.9 45.0 4.5 8.1 17.5 0.2 26.5 7.0 2.5 0.8 16.3 5.5 2.5 2.5 5.1 2.4 7.1 25.5 0.3 29.9 5.4 13.0 0.5 25.4 4.0 13.0 0.7 35.3 0.3 21.8 28.5 0.3 86.0 12.1 17.5 0.1 68.3 6.0 17.5 0.8 18.9 0.8 50.4 23.5 0.3 169.8 . 0.0 17.5 0.0 17.5 0.1 17.5 0.1 17.5 0.1 17.5 0.1 17.5 0.3 154.8 51.9 13.5 0.7 153.4 5.0 13.5 0.8 34.9 0.7 17.9 27.5 0.3 64.5 10.1 14.0 0.3 41.0 4.0 14.0 0.5	T 9: 50-CM	GROWTH CUT	F TO 15-	CM STUB	BLE, PRE-	-	2		-	_		NCR. THEN	75 04	TIT TO 18	2	2	2:		7.0
17.4 1.2 27.7 23.5 0.2 93.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.2 44.3 9.0 5.4 27.3 0.2 20.6 1.3 8.3 0.3 3.9 5.0 8.3 0.9 5.0 8.3 0.9 5.0 8.3 0.9 5.1 2.4 7.1 25.5 0.3 29.9 5.4 13.0 0.5 25.4 4.0 13.0 0.7 35.3 0.3 21.8 28.5 0.3 86.0 12.1 17.5 0.1 68.3 6.0 17.5 0.8 0.7 THEN BOOT CUT TO 8 CM 8.9 0.8 50.4 23.5 0.3 169.8 0.0 0.0 0.0 0.0 0.0 0.0 13.5 0.8 3.4 0.7 17.9 0.3 45.5 21.0 0.3 154.8 51.9 13.5 0.7 153.4 5.0 13.5 0.8 3.4 0.7 17.9 0.3 27.5 0.3 64.5 10.1 14.0 0.3 41.0 4.0 14.0 0.5	11 JUNE																		
46.3 9.0 5.4 27.3 0.2 20.6 1.3 8.3 0.3 3.9 5.0 8.3 0.9 5.0 8.3 5.2 5.5 5.1 2.4 7.1 25.5 0.3 29.9 5.4 13.0 0.5 25.4 4.0 13.0 0.7 35.3 0.3 35.3 0.3 29.9 5.4 13.0 0.5 25.4 4.0 13.0 0.7 35.3 0.3 86.0 12.1 17.5 0.1 68.3 6.0 17.5 0.8 18.9 0.8 50.4 23.5 0.3 169.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	1 JULY	0.95	0.07	41.7	39.7	17.6	1.2	27.7	23.5	0.0	03.3	•		•					
49.0 4.5 8.1 17.5 0.2 26.5 7.0 2.3 0.3 3.9 5.0 8.3 0.9 5.1 2.5 5.1 2.4 7.1 25.5 0.3 29.9 5.4 13.0 0.5 16.3 5.5 2.5 2.5 25.1 2.4 7.1 25.5 0.3 29.9 5.4 13.0 0.5 25.4 4.0 13.0 0.7 25.3 0.3 21.8 28.5 0.3 86.0 12.1 17.5 0.1 68.3 6.0 17.5 0.8 25.4 20.8 20.8 20.8 20.8 20.8 20.8 20.8 20.8	19 JULY	3.27	0.21	11.7	34.9	5.44	0	2.4	27.2		2000						0.0		
55.1 2.4 7.1 25.5 0.3 29.9 5.4 13.0 0.5 25.4 4.0 [3.0 0.7 35.3 0.3 25.3 2.5 2.5 2.5 35.3 0.3 25.3 0.3 25.9 5.4 13.0 0.5 25.4 4.0 [3.0 0.7 35.3 0.3 21.8 28.5 0.3 86.0 12.1 17.5 0.1 68.3 6.0 17.5 0.8 35.3 0.3 25.4 25.5 25.5 25.4 4.0 [3.0 0.7 35.4 4.0 [3.0 0.7 35.4 4.0 [3.0 0.7 35.4 4.0]]]] 8.9 0.8 50.4 23.5 0.3 169.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	S AUG	2.86	0.09	13.7	32.8	69.0	6.8	, a	17.5	100	20.00	7:1	7 .	6.0	6.6	2.0		0.9	6.1
35.3 0.3 21.8 28.5 0.3 86.0 12.1 17.5 0.1 68.3 6.0 17.5 0.8 THEN BOOT CUT TO 8 CM 8.9 0.8 50.4 23.5 0.3 169.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	26 AUG	2.80	0.04	12.1	33.4	52.1	2.4	7.1	25.5	7.0	20.0	2.	2.5	9.0	16.3	5.5	2.5	2.5	8.5
# THEN BOOT CUT TO 8 CM 8:9 0.8 50.4 23.5 0.3 169.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	5 OCT	1.19	0.01	29.4	34.9	35.3	0.0	21.8	28.5	2.0	86.0	12.4	13.0	2.0	25.6	0.4	13.0	0.7	8.5
8.9 0.8 50.4 23.5 0.3 169.8 0.0 0.0 0.0 0.0 17.7 0.3 45.5 21.0 0.3 154.8 51.9 13.5 0.7 153.4 5.0 13.5 0.8 34.9 0.7 17.9 27.5 0.3 64.5 10.1 14.0 0.3 41.0 4.0 14.0 0.5	ST 10: 50-CM	GROWTH CL	IT TO 13	-CM STU	BBLE ONCE			60	*				2	1.0	2.00	0.0	2.7	0.0	12.4
0.61 0.08 55.8 34.5 8.9 0.8 50.4 23.5 0.3 169.8 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	11 JUNE	•																	
0.68 0.01 48.8 33.3 17.7 0.3 45.5 21.0 0.3 154.8 51.9 13.5 0.7 153.4 5.0 13.5 0.8 1.52 0.02 25.6 38.8 34.9 0.7 17.9 27.5 0.3 64.5 10.1 14.0 0.3 41.0 4.0 14.0 0.5	8 JULY	0.61	0.08	55.8	34.5	8	8.0	405	22 6		160.0					•			
1.52 0.02 25.6 38.8 34.9 0.7 17.9 27.5 0.3 64.5 10.1 14.0 0.3 41.0 4.0 14.0 0.5	23 AUG	0.68	0.01	8.87	33.3	17.7	0.3	45.5	25.5	3 6	154.0		0.0				0.0		
21.5 41.0 4.0 14.0 0.5 41.0 4.0 14.0 0.5	12 OCT	1.52	0.02	25.6	38.8	36.0	0.7	17.0	22.00	200		27.9	25.5	1.0	153.4	2.0	13.5	0.8	11.3
			!					41.2	61.13	2.5	04.0	10.1	14.0	0.3	41.0	4.0	14.0	0.5	9.9

TABLE XV (Continued)

	RA	RATIO	DRY M.	DRY MATTER CON	NTRIBUTED BY	BY C		TILLER MERISTEMS	RISTEMS		ANTA	TADO PPT	ATTI ANY TITE BY MENTERAL	Contrado	******			
DATE	ABOVE	BELOW	STEMS LEAV	ABOVE CUT STEMS LEAVES	BELOW STEMS L		MEAN HEIGHT1/	MIN. NUMBER HEIGHT	MIN. HEIGHT	MAX.	MEAN	NIMBED	MIN.	MAX.			TILLER ORIGINS MIN. MA	MAX.
				2	2	-	CH	n/m2		- CB -		n/m2	THE TOUT	- CH -	HEIGHT	n/m2	HEIGHT	HEIGHT
MCT 11: 50-CM	50-CM GROWTH CUT 15-CM STUBBLE ONCE, BOOT CUT TO 8	UT 15-C	M STUBBL	E ONCE,	BOOT CUT		CH ONCE,		THEN 75 CM CUT	TO 15 CM								
11 JUNE	9.78	0.26	6.2	55.8	30.3 7	7.7	2.5	21.0		0		0						
8 JULY								2		0.6	•	0.0	•			0.0		
2 AUG	2.38	0.07	14.4	33.5		17	4.4	22 5		33.6								
30 AUG	1.86	0.05	24.4	41.4			10.4	10.5	3.5	32.0	20.00	13.0	0.2	21.8	2.0	13.0	0.8	11.0
19 OCT	1.71	0.05	20.2	34.4	44.2 1	1.2	14.4	34.5	0.1	56.5	7.07	13.5	1.0	38.5	3.0	13.5	0.7	5.1
MGT 12: 50-CM	50-CM GROWTH CUT TO 15-CM STUBBLE TWICE, BOOT	UT TO 1	S-CM STU	BBLE TWI		CUT TO	8 CM	ONCE, THEN		0				2	}		0.5	0.,
11 JUNE																		
18 JUNE							•											
19 JULY	87.0	0.05	63.1	30.1	. 4		010				1000				200			
13 AUG	2.12	90.0	18.0	1 09	1	200	0.17	17.0		104.0		0.0				0.0		
1 SEPT	3.54	0.05	10.01	16.1	20.00	2.5	0.01	24.0	7.0	32.3	5.9	12.5	0.5	16.5	3.5	12.5	1.0	7.3
12 oct	200	300	20.01	200.4		1.7	9.00	24.0	1.0	26.8	2.0	17.5	0.1	21.5	2.5	17.5	7.0	6.5
3	0.93	70.0	22.0	33.5	30.5	0.5	27.1	20.0	1.1	90.3	1.4	3.5	0.3	4.3	2.5	3.5	1.1	3.5
MGT 13: 50-CM	50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	UT TO 1	S-CM STU	BBLE ONC	EARLY.	BLOOM	CUT TO	8 CM ONCE	E, THEN	75 CM CUT	TO 15	5						
11 JUNE	•																	
14 JULY			******		8000					•	•							
20 AUG	0.91	0.05	39.0	33,3	27.2 0	9.1	38.7	18.5		82.3	2 72	13 61		. 01				
17 SEPT	2.41	0.02	13.9	32.3			9.2	3.45	200	33.0	24.5	25.5	? .	7.07	0.0	25.5	0.7	9.2
19 OCT	20.18	0.04	3.9	24.7	68.2 3	3.3	4.6	37.0	0.5	13.8	2.2	19.0	1.0	5.77	0.6	25.5	9.0	10.3
MGT 14: 50-CM	50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	UT TO 1	S-CH STU	BBLE ONCE	E, EARLY BLOOM		CUT TO	8 CM ONC	CM ONCE, THEN	PRE-BOOT	CUT TO	15 CM			•			1.0
11 JUNE			•															
14 JULY	0.34	0.20	68.4	23.2	7.0 1	1.3	06.3	13.0	0.3	233 6								
20 AUG	0.96	0.03	39.4	36.3			27.6	20.02	200	82.1	30.0			10.0		0.0		
12 OCT	0.93	0.03	37.1	33.9	28.1 0	6.0	31.8	29.5	0.3	111.8	14.8	10.0	2.0	7.07	200	0.00	4.0	6.0
MGT 15: 50-CH GROWTH CUT TO 15-CM STUBBLE ONCE,	GROWTH C	UT TO 1	S-CM STU	BBLE ONCE	E, EARLY BLOOM	BLOOM	CUT TO	8 CM ONCE		BOOT CUT	TO 8 CM				;	2		
11 JUNE	12.42	0.24	4.6	54.1	33.2 8	8.0	2.7	25.5	0.5	8.8		0.0	•			0.0		
30 AliG	0.57	0.03	55.7	31.5		. 4	K0 3	30.6								•		•
19 ocr	4.06	0.05	10.4	34.1	52.8 2	2.7	4.0	28.0	2 6	15.001	7.00	9.01	000	166.8	 	0.6	6.0	7.6
				1			***	200	200	20.01	0.7	13.0	7.0	73.5	2.5		4.0	2

TABLE XVI

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF SWEET SIOUX III AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

MIN. MAX. MAX. MIN. MAX. MAX. N/m2 cm cm 12.5 0.3 84.0 14.1 12.5 0.3 84.0 14.1 12.5 0.3 84.0 14.1 13.5 0.3 87.1 27.1 13.5 5.5 160.0 76.1 13.5 5.5 160.0 76.1 13.0 8.2 74.3 14.1 13.0 0.5 93.8 16.1 13.0 0.5 93.8 16.1 13.0 0.5 93.8 16.1 13.0 0.5 85.0 13.1 13.0 0.5 88.8 4.1 13.0 0.5 88.8 4.1 13.0 0.5 81.3 1.1 13.0 0.5 0.5 1.1 13.0 0.5 0.5 1.1 13.0 0.5 0.5 1.1 13.0 0.5 0.5 1.1 13.0 0.5 0.5 1.1 13.0 0.5 0.5 1.1 13.0 0.5 0.5		LEA	EAF/STEM RATIO	DRY M	DRY MATTER CONTR	NTRIBUT	ED BY		RIMARY ILLER M	PRIMARY CULM AND TILLER MERISTEMS		AXII	LARY TI	AXILLARY TILLER MERISTEMS	ISTEMS	AXIL	LARY III	LLER OR	GINS
24.6 2.6 2.0 20.0 9.0 7.6 30.3 14.3 10.0 11.0 17.5 5.0 1.0 5.0 2.0 2.0 3.1 13.0 12.5 3.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 1.0 1.0 17.5 5.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 5.0 1.0 5.0 1.0 5.0 1.0 1.0 5.0 5.0 1.0 5.0	DATE	ABOVE	CUT	STEMS	LEAVES	S	CUT	MEAN HEIGHT1/	NUMBER	MIN. HEIGHT	MAX.	MEAN	NUMBER	MIN.	MAX.	MEAN	MIMBER	MIN.	MAX.
24.6 2.6 2.0 20.0 9.0 7.6 30.3 14.3 1.0 11.0 17.5 5.0 1.0 5.0 2.0 2.0 2.0 3.0 3.0 14.3 1.0 11.0 17.5 5.0 11.0 5.0 11.0 2.0 3.0 11.0 11.0 17.5 5.0 11.0 5.0 11.0 2.0 4.5 31.0 6.5 2.5 5.3 11.0 128.3 8.0 6.8 15.5 0.3 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 14.5 0.3 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 128.3 8.0 68.8 153.5 7.0 0.0 5.8 46.3 6.5 8.0 2.0 2.0 128.3 8.0 68.8 153.5 7.0 0.0 2.0 8.5 142.0 4.5 4.5 31.5 12.5 12.5 12.3 12.0 2.0 8.2 12.0 13.5 12.0 128.3 14.0 27.1 201.5 7.3 11.0 2.0 8.5 13.0 7.0 11.0 8.7 12.5 13.0 22.0 7.3 14.0 0.7 9.0 13.0 7.0 11.0 8.7 12.5 13.0 13.0 8.2 74.3 14.0 0.7 9.0 13.0 7.0 11.0 4.0 13.0 13.0 13.0 13.0 13.0 13.0 13.0 13				1 1		2	-	CH	n/m2		- 69 -	1 1 1	n/m2	1	1.		n/m2		CH
24.6 2.6 2.0 20.0 9.0 7.6 30.3 4.3 1.0 11.0 17.5 5.0 1.0 5.0 5.0 4.5 41.5 1.0 11.5 1.0 17.5 5.0 1.0 5.0 5.0 41.5 0.3 64.0 14.3 1.0 11.0 17.5 5.0 1.0 5.0 5.0 4.5 41.5 0.3 6.2 0.3 6.3 6.3 6.5 6.5 6.5 6.3 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5	T 2: 90-CM	GROWTH C	TOT TO	S-CM STU	BBLE														
19.9 2.1 20.0 15.5 0.3 84.0 14.3 1.0 11.0 17.5 5.0 1.0 5.0 2.5 4.5 31.0 12.5 0.8 62.3 20.9 2.5 4.5 31.0 6.5 2.5 5.3 20.9 1.4 30.1 15.0 2.0 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 2.0 1.4 30.1 15.0 2.0 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 2.0 2.0 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2	16 JUNE	2.45		21.3	51.5	24.6	2.6	20.0	0.0	7.6	30 3		0						
26.9 1.0 128.3 84.0 14.3 1.0 11.0 11.5 5.0 1.0	S THEY	1 21		26.3	100			000		000	20.3		0.0				0.0		
29.9 3.4 31.9 31.9 12.5 0.8 62.3 20.9 2.5 4.5 31.0 6.5 2.5 5.3 5.3 5.9 5.9 5.1 31.9 12.5 0.3 59.3 7.0 0.0 5.8 46.3 6.5 8.0 2.0 5.9 5.9 1.4 30.1 13.0 2.0 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 2.0 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 2.0 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 2.0 2.0 3.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 8.5 1.0 2.0 1.0 8.7 1.0 3.5 1.0 3.5 1.0 3.5 1.0 3.5 1.0 3.5 1.0 3.5 1.0 3.5 1.0 3.5 1.0 4.0 3.5 1.0 3.5 1.0 3.5 1.0 3.5 1.0 4.0 3.5 1.0 3.5 1.0 3.5 1.0 3.5 1.0 4.0 3.5 1.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	20 1111 9	1907	2.50	30.00	0.24	19.9	1.7	20.02	15.5	0.3	84.0	14.3	1.0	11.0	17.5	2.0	1.0	5.0	5.0
41.6 0.4 22.0 14.5 0.3 59.3 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0	170F 20	1.43	0.11	31.0	38.2	56.9	3.1	31.9	12.5	0.8	62.3	20.9	2.5	4.5	31.0	6.5	2.5	5.3	10.0
8 29.9 1.4 30.1 15.0 2.0 87.1 27.0 8.0 5.8 46.3 6.5 8.0 2.0 1.3 6.3 1.0 128.3 8.0 68.8 163.5 76.2 4.5 24.5 142.0 4.5 4.5 3.5 1.4 9.4 0.0 72.3 13.5 5.5 160.0 76.2 4.5 24.5 142.0 4.5 4.5 3.5 1.5 8 0.0 130.7 14.0 27.1 201.5 7.3 1.0 2.0 8.5 9.0 1.0 8.7 1.5 13.7 0.0 131.7 9.0 22.2 74.3 14.0 0.7 9.0 19.0 5.0 0.7 4.0 0.7 1.5 13.7 0.0 13.0 8.2 74.3 14.0 0.7 9.0 19.0 5.0 0.7 4.0 0.7 1.5 12.9 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 6.3 6.5 1.4 33.2 13.0 0.5 85.0 13.3 13.3 13.3 8.0 1.5 6.3 13.5 1.3 13.3 13.3 8.0 1.5 6.3 13.0 0.5 13.5 1.3 13.3 13.3 8.0 1.5 6.3 13.0 0.5 13.5 13.3 13.3 13.3 13.3 13.3 13.3 13	25. AUG	1.33	0.01	25.1	32.9	41.6	4.0	22.0	14.5	0.3	59.3		0.0				0.0		
3 6.3 1.0 128.3 8.0 68.8 163.5 . 0.0 4.5 24.5 142.0 4.5 4.5 3.5 3.6 0.0 72.3 13.5 5.5 160.0 76.2 4.5 24.5 142.0 4.5 4.5 3.5 3.5 3.6 0.7 47.7 12.5 0.8 122.3 5.3 1.0 2.0 8.5 9.0 1.0 8.7 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5	22 SEPT	1.07	0.15	32.8	35.8	29.9	1.4	30.1	15.0	2.0	87.1	27.0	8.0	5.8	46.3	5.9	8	20	11.0
3 5.8 0.0 130.7 12.5 5.5 160.0 76.2 4.5 24.5 142.0 4.5 4.5 3.5 3.5 30.6 0.7 72.3 13.5 5.5 160.0 76.2 4.5 24.5 142.0 4.5 4.5 3.5 3.5 30.6 0.7 72.3 13.5 5.5 160.0 76.2 4.5 24.5 142.0 4.5 4.5 3.5 3.5 30.6 0.7 72.3 13.5 5.5 160.0 77.3 1.0 2.0 8.5 9.0 10.0 8.7 0.0 131.7 0.0 111.7 9.0 20.0 222.0 7.3 1.0 3.5 13.0 7.0 10.0 4.0 13.7 0.0 111.7 9.0 20.0 222.0 7.3 14.0 0.7 9.0 19.0 5.0 0.7 4.0 10.0 4.0 13.7 0.0 111.7 9.0 20.0 222.0 7.3 14.0 0.7 9.0 19.0 5.0 0.7 4.0 10.0 4.0 13.3 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3.5 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3.5 3.5 1.4 33.2 13.0 0.5 85.0 13.3 13.3 13.3 8.0 1.5 6.3 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0	T 4: BOOT	CUT TO 8-	CM STUBI	BLE															
3 5.8 0.0 130.7 14.0 27.1 201.5 5.3 1.0 2.0 8.5 9.0 1.0 8.7 3.5 1.0 2.0 8.5 9.0 1.0 8.7 3.5 1.0 2.0 8.5 9.0 1.0 8.7 3.5 1.0 2.0 8.5 9.0 1.0 8.7 1.0 8.7 12.5 0.8 122.3 5.3 1.0 2.0 8.5 9.0 1.0 8.7 1.0 8.7 12.5 0.8 122.3 5.3 1.0 2.0 19.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2	29 JUNE	0.64		56.4	36.3	6.3	1.0	128 3	0	8 8 8	162 6		0						
3 5.6 0.7 47.7 12.5 0.8 122.3 5.3 1.0 2.0 8.5 9.0 1.0 8.7 3.5 0.0 130.7 14.0 27.1 201.5 7.3 1.0 2.0 8.5 9.0 1.0 8.7 1.0 13.7 0.0 111.7 9.0 222.0 7.3 14.0 0.7 9.0 19.0 5.0 0.7 4.0 1.0 4.0 1.0 4.0 1.0 4.0 1.0 8.7 1.3 13.0 8.2 74.3 14.0 0.7 9.0 19.0 5.0 0.7 4.0 1.0 4.0 1.0 4.0 1.0 1.3 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 1.5 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 13.3 13.3 8.0 1.5 6.3 15.0 1.5 85.0 13.3 1.5 13.3 13.3 8.0 1.5 6.3 15.0 15.0 0.5 13.3 13.3 13.3 13.3 8.0 1.5 6.3 15.0 15.0 15.0 15.0 15.0 15.0 15.0 15.0	4 AUG	0.53		59.1	31.4	9.6	0.0	72.3	12.5		160.0	76.9	0.4				0.0		
3 5.8 0.0 130.7 14.0 27.1 201.5 . 0.0 3.5 13.0 7.0 1.0 4.0 13.7 0.0 111.7 9.0 222.0 7.3 14.0 0.7 9.0 13.0 7.0 1.0 4.0 13.7 0.0 111.7 9.0 222.0 7.3 14.0 0.7 9.0 13.0 7.0 1.0 4.0 1.0 0.0 5.0 0.7 4.0 1.0 6.0 2.0 0.7 4.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	20 SEPT	0.78	0.05	38.8	29.8	30.6	0.7	47.7	12.5	. 0	122.3	2.5	1.0	24.5	142.0	4.0	4.0	0.0 0.0	9.0
3 5.8 0.0 130.7 14.0 27.1 201.5 . 0.0 . 0.	T 5: EARLY	BLOOM CU	JT TO 8-	CM STUBBI	23														7:6
13.7 0.0 111.7 9.0 20.0 222.0 7.3 1.0 3.5 13.0 7.0 0.7 4.0 000CE, THEN PRE-BOOT CUT TO 15 CM. 3 14.0 0.7 9.0 19.0 5.0 0.7 4.0 00CE, THEN PRE-BOOT CUT TO 15 CM. 3 15.0 0.7 9.0 19.0 5.0 0.7 4.0 0.7 4.0 0.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3.5 21.9 1.3 60.1 9.5 6.3 153.0 11.8 3.5 0.8 35.5 7.0 3.5 3.5 3.5 3.5 1.4 33.2 13.0 0.5 85.0 13.3 1.5 13.3 13.3 8.0 1.5 6.3 13.3 45.5 1.4 33.2 13.0 0.2 48.8 4.3 3.5 0.8 10.3 2.5 3.5 1.0 3.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 6.3 13.0 1.5 13.0 1.5 5.5 37.5 11.7 15.7 15.7 15.5 5.5 37.5 11.7 15.7 15.7 15.5 5.5 37.5 11.7 15.7 15.7 15.7 15.7 15.7 15.7 1	5 JULY	0.68	0.00	57.8	36.3	5.8	0.0	130.7	14.0	27.1	201 5		0						
ONCE, THEN PRE-BOOT CUT TO 15 CM. 3 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3	22 AUG	0.36		63.4	22.9	13.7	0.0	111.7	0	20.0	222.0		000				0.0		
ONCE, THEN PRE-BOOT CUT TO 15 CM 3 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3 45.5 1.4 33.2 13.0 0.5 85.0 13.3 1.5 13.3 13.3 8.0 1.5 6.3 4 55.5 1.4 33.2 13.0 0.5 85.0 13.3 1.5 13.3 13.3 8.0 1.5 6.3 5 15.6 0.6 14.2 31.0 0.2 48.8 4.3 3.5 0.8 10.3 2.5 3.5 1.0 3.3 1.2 0.0 36.7 17.5 0.5 81.3 1.3 1.0 1.5 30.8 7.8 3.7 3.8 18.0 4.0 3.7 2.8 41.5 1.7 15.5 5.5 37.5 11.7 1.5 4.0 18.0 4.7 3.7 2.8	6 OCT	1.02		29.6	28.2	41.7	0.5	34.3	13.0	8.2	74.3	14.0	0.7	0.0	19.0	5.0	1.0	0.4	10.0
3 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3.5 21.9 1.3 60.1 9.5 6.3 153.0 11.8 3.5 0.8 15.5 7.0 3.5 3.5 3.5 3.5 1.4 33.2 13.0 0.5 85.0 13.3 1.5 13.3 13.3 8.0 1.5 6.3 15.5 1.4 11.5 8.8 33.3 0.0 1.5 13.3 13.3 8.0 1.5 6.3 15.5 15.6 0.6 14.2 31.0 0.2 48.8 4.3 3.5 0.8 10.3 2.5 3.5 1.3 17.5 0.5 81.3 1.3 1.0 1.3 3.5 1.0 3.3 17.5 0.5 81.3 1.3 1.0 1.3 3.5 1.0 3.3 17.5 0.5 81.3 1.3 1.5 1.5 1.5 5.5 37.5 11.7 15.7 15.5 5.5 37.5 11.7 15.7 15.7 15.5 5.5 37.5 11.7 15.7 15.7 15.7 15.7 15.7 15.7 1	r 8: 90-cm	GROWTH C	UT TO 1	S-CM STUI	BBLE ONCE	, THEN	PRE-BOC		15 CM										
3 20.7 1.3 36.9 15.0 0.5 93.8 16.6 2.0 1.5 30.0 6.0 2.0 4.5 3 45.5 1.4 33.2 13.0 0.5 93.8 16.6 2.0 1.5 3.5 7.0 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 3.5 4.5 3.5 1.3 3.5 1.3 3.5 1.3 3.5 3.5 3.5 3.5 3.5 3.5 3.7 3.	16 JUNE																		
6 15.1 1.3 21.9 1.3 21.9 1.3 20.0 2.0 4.5 3.7 3.7 3.7 3.7 3.8 41.5 3.7 3.7 3.7 3.8 41.5 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 41.5 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.8 3.7 3.7 3.7 3.8 3.7 3.7 3.7 3.8 3.	8 JULY	0.88	0.05	41.7	36.3	20.7	1.3	36.9	15.0	. 0	03.00	16.6							
45.5 1.4 33.2 13.0 0.5 85.0 13.3 1.5 13.3 13.3 8.0 1.5 6.3 5.5 1.4 33.2 13.0 0.5 85.0 13.3 1.5 13.3 13.3 8.0 1.5 6.3 1.5 15.1 13.3 13.2 13.0 0.5 8.8 33.3 0.0	16 AUG	0.57	0.05	68.8	27.8	21.9	1.3	1.09	5	2 2	153.0	11 8	2007	T . C	20.00	0.0	2.0	4.0	8.0
6 15.1 1.3 21.4 11.5 8.8 33.3 . 0.0 . 0.0 . 0.0 . 0.0 . 0.0 . 15.6 0.6 14.2 31.0 0.2 48.8 4.3 1.3 1.0 1.3 1.3 3.5 1.3 1.3 1.3 3.5 1.0 3.3 1.0	22 SEPT	0.92	0.03	27.8	25.3	45.5	1.4	33.2	13.0	0.5	85.0	13.3	1.5	13.3	13.3	0.0	1.5	4.5	0.0
JULY 1.70 0.08 31.1 52.6 15.1 1.3 21.4 11.5 8.8 33.3 . 0.0 .	T 16: 90-C	M GROWTH	CUT TO	8-CM STU	BBLE			The second											7.0
JULY 1.21 0.03 37.9 45.9 15.6 0.6 14.2 31.0 0.2 48.8 4.3 3.5 0.8 10.3 2.5 3.5 1.3 AUG 0.93 0.00 43.0 39.8 17.2 0.0 36.7 17.5 0.5 81.3 1.3 1.0 1.3 1.3 3.5 1.0 3.3 AUG 1.72 0.01 25.7 40.9 33.0 0.4 12.8 13.0 1.5 30.8 7.8 3.7 3.8 18.4 3.7 3.7 2.8 OCT 1.47 0.04 23.0 33.8 41.5 1.7 15.5 5.5 37.5 11.7 1.5 4.0 18.0 4.0 3.5	16 JUNE	1.70	0.08	31.1	52.6	15.1	1.3	21.6	11.5	8	33.3		0				0		
AUG 0.93 0.00 43.0 39.8 17.2 0.0 36.7 17.5 0.5 81.3 1.3 1.0 1.3 1.3 3.5 1.0 3.3 AUG 1.72 0.01 25.7 40.9 33.0 0.4 12.8 13.0 1.5 30.8 7.8 3.7 3.8 18.4 3.7 3.7 2.8 OCT 1.47 0.04 23.0 33.8 41.5 1.7 15.5 5.5 37.5 11.7 1.5 4.0 18.0 4.0 3.5 5.5	S JULY	1.21	0.03	37.9	45.9	15.6	9.0	14.2	31.0	0.2	68.8	4.3			10.3	9.6	200		
AUG 1.72 0.01 25.7 40.9 33.0 0.4 12.8 13.0 1.5 30.8 7.8 3.7 3.8 18.4 3.7 3.7 2.8 OCT 1.47 0.04 23.0 33.8 41.5 1.7 15.5 5.5 37.5 11.7 1.5 4.0 18.0 4.0 3.5 2.8	1 AUG	0.93	0.00	43.0	39.8	17.2	0.0	36.7	17.5	0.5	81.3	1.3		2.5	1 3	2.5	7.0	2.5	4.0
1.47 0.04 23.0 33.8 41.5 1.7 15.7 15.5 5.5 37.5 11.7 1.5 4.0 18.0 4.0 1.5 2.0	30 AUG	1.72	0.01	25.7	6.09	33.0	0.4	12.8	13.0	1.5	30.8	7	3.7	1 00	10 4		2.4	200	7.7
	7 OCT	1.47	90.0	23.0	33.8	41.5	1.7	15.7	15.5	5.5	37.5	11.7		0.4	18.0			0.7	0.0

TABLE XVI (Continued)

	LEAF/STEM RATIO	AF/STEM RATIO	DRY M	DRY MATTER CONTRIBUTED BY	TRIBUTI	ED BY	# F	RIMARY ILLER M	PRIMARY CULM AND TILLER MERISTEMS	200	AYTT	TARY TIT	AXTITARY PTITED MEDICHENC	erence	TALAN	SULPTION OF THE WAS TITAL		
1	ABOVE	BELOW	ABOVE CUT		BELOW CUT	1 1	MEAN		MIN.		MEAN		MIN.	MAX.	MEAN	MAKE III	MIN.	MAX.
DATE	COL	CUL	STENS	STEMS LEAVES	STEMS		HEIGHT!	- 4	NUMBER HEIGHT	HEIGHT	HEIGHT	NUMBER	HEIGHT	HEIGHT	HEIGHT	NUMBER	HEIGHT	HEIGH
			1 1 1	×	1 1 1	1 1	CH	n/m2	1	CB	1 1 1	n/m2		- CB -		n/m2		10
MCT 17: 90-CM GROWTH CUT TO 8-CM STUBBLE ONCE,	M CROWTH	SUT TO 8	-CM STUB	BLE ONCE,		THEN PRE-BOOT CUT	T CUT TO	8 CM										
16 JUNE																		
18 JULY	0.52	0.01	58.4	29.5	11.0	0.0	75.0	12.0		177.0								
30 AUG	0.54	0.03	54.0	29.5	15.9	9.0	01 4	200	200	100.0	10.0	1.0	0.0	21.0	13.0	1.0	9.6	17.0
7 007	1 00	100	1 61		1	0 0	11	7:0	D.1	470.0	73.7	2.5	5.3	8.69	7.0	3.5	2.9	10.8
100.	00.7	10.0	77.4	67.7		1.0	13.7	9.5	1.0	40.0	10.4	5.0	1.5	31.5	4.5	5.0	1.0	00
MCT 18: 90-CM GROWTH CUT TO 8-CM STUBBLE ONCE,	M GROWTH (TUL TO 8	-CM STUB	BLE ONCE,	THEN	BOOT CUT	T TO 8 CM	1										
16 JUNE	1.54	60.0	32.6	8.65	16.1	1.5	25.2	9.5	5.0	37.0		0						
18 JULY	0.55	00.0	58.8	32.5	8.6	0.0	8.99	11.0	0.5	155.5		000				0.0		
30 AUG	0.58	00.0	50.0	29.3	20 6	0 1	79 1	13.0	2.5	164 0						0.0		
7 OCT	1 61	100	17 6	200	2.64	1 4	1.77	73.0	2.1	104.0	0.0	1.0	0.8	8.0	9.5	1.0	9.3	9.3
	70.7	10.0	11.03	6.07	73.1	0.0	14.1	10.5	3.0	32,3	7.3	1.5	7.0	8.0	6.0	1.5	4.0	11.0
MCT 19: 90-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	M GROWTH C	UT TO 1	S-CM STU	BBLE ONCE	S, THEN	BOOT CL	CUT TO 8 C	5										
16 JUNE	1.32	0.13	27.8	48.2	21.3	2.7	22.0	11.3	3,5	45.3		0.0				0		
18 JULY	0.62	0.00	57.1	35.0	8.0	0.0	70.3	10.5	8.6	153.0	The state of the s		100000			0.0		
30 AUG	0.50	00.0	59.5	29.3	11.1	0.1	81.8	12.0	9 0	0.001		200				0.0		
7 000	1 00	000	27 6	200	1		200	200	0 .	7007	7.0	7.0	1.5	2.5	7.5	2.0	7.3	8.0
130	T.03	30.0	0.17	23.0	47.0	7.0	20.1	13.0	4.00	50.8	18.2	3.0	3.5	34.5	5.5	3.0	2.3	7.5

TABLE XVII

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT IVDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF FS-531 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

	DATE M2		MGT 1: 50-CM		18 JUNE			28 JULY	13 AUG	S OCT		MGT 2: 90-CM	21 JUNE	12 AUC	9 SEPT	19 OCT	MGT 3: PRE-BOOT CUT TO 15-CM STUBBLA	30 JUNE	26 AUG	14 OCT	MCT 4: BOOT CUT TO 8-CM STUBBLE	26 JULY 22 SEPT	MGT 5: EARLY BLOOM CUT TO 8-CM STUB	2 AUG
ABOVE	YIELD, M2 SAMPLE		50-CM GROWTH CUT TO 15-CM ST	206	687	851	269	279	2004	707		90-CM GROWTH CUT TO 15-CM ST	3990	10/5	1558	721	OT CUT	6802	7571	1343	UT TO 8-	21325	BLOOM CT	20275
	ABOVE BELOW	2	CUT TO	63	212	201	158	98	32	591		CUT TO	1383	923	1256	542	TO 15-C	3642	3892	133	-CM STUI	19867 4715	TT TO 8-	17215
	MS BELOW CUT		15-CM S	623	673	775	624	768	818	4004 804		15-CM S.	1306	1206	1483	1945	M STUBBI	1238	1969	1636	BBLE	1227	-CM STU	1511
0.14	ABOVE CUT	kg/	TUBBLE	1198	847	962	725	348	398	969		LUBBLE	2545	1636	1650	1170	M		2990	675		8015	BLE	6419
0.14 M2 SAMPLE	LEAVES VE BELOW T CUT	ad		88	104	172	309	36	22	14			103	226	77	39		86	29	19		00		0
PLE	ABOVE CUT	1 1 1		1261	1058	1163	883	434	431	1206	0077		3928	2289	2213	1171		7223	6882	807		27882		23634
	BELOW CUT	1 1 1		710	777	296	933	804	840	1109	770		1409	1432	1306	1984		1324	1997	1691		1227		1511
	ABOVE			1972	1835	2110	1816	1238	1270	2314	7007		5337	3721	3922	3696		6770	8879	2504		29109		25144
	PLANT HEIGHT	E S			59		52	94	44	25	70		95	77	82	91. 52		169	184	56		269		279
	LIVE	- n/m2		116	118	135	97	76	108	81	14		108	151	81	111			100	108		98		124
	7.07	12 -		0	0	0	0	20	38	27	14					43			1040			86 1		0
-MI	DI HAY	-					k			73 78					9	43 76			21	57		100 64 52 67		09 001
CN-VITRO	120	- 2								78.9 3						76.1 2						64.8 1. 67.6 1.		60.2 0.
TOTAL	NITROGEN NBOVE BEL CUT	1								3.81 1.				Ü		2.32 1.				2.94 2.		1.08 0.		0.74 0.
	18 H			17	47	75	93	81	89	1.95	18		90	44	58	1.39				2.09		0.26 24		0.32 11
	ABOVE			2 70	2.06	2 35	1 51	0.84	0.81	1.95	1.09		6.22	4.10	3.30	2.36	3		7.46	1.47		4.96		11.27
	AREA TWDEX ABOVE BE			, 01	16.7	2 44	1 54	0.84	0.84	1.97	1.10		6.27	4.19	3.31	2.39	67.7		7.40	1.57		24.56		11.27
	BELOW				0.21	77.0	0.0	000	0.03	0.05	0.01		0.05	0.08	0.01	0.03	9		0.05	0.10		0.0		0.00

TABLE XVII (Continued)

ABOVE	CUT YIELD, DATE M2 SAMPLE	MGT 6: 50-CM CROHTH CITY TO 15-CM CONTENTS ALCOHOLD		JUNE	JULY	12 AUG 3196	13	MCI 7: 50-CM GROWIH CUI TO 15-CM STUBBLE ONCE, THEN 90 CM		28 JUNE 2455				5 OCT 1128	MCT 8: 90-CM GROWTH CUT TO 15-CM STUBBI	17 AUG 8350		MGT 9: 50-CM GROWTH CUT TO 15-CM STUBBLE,	17 AUG 1620 3 SEPT 1199 19 OCT 1425
	AB D					1066		H CUT TO				183	736		CUT TO 1		2171	1 CUT TO	 1216 466 420
	STEMS OVE BELOW UT CUT	15.64 6	- In-CT	987	1259	1691	1531	15-CM S	4	The State of	1112	1265	1435	1069	S-CM ST	1799	1934	15-CM S	2784 2784 1855 1873
0.14	ABOVE BEI	kg/ba	Taggar	2336	1604	1934	11/4	TUBBLE C			1048	771	2067	919	UBBLE ON	2652	2397		2483 940
0.14 MZ SAMPLE	VES BELOW CUT	m	JACE, II	61	68	65	1	NCE, Th			118	22	36	36	ICE, THE		25	PRE-BOOT CUT	75 75 75 78 78 78
PLE	ABOVE CUT	1 6	IEN 90-C	3394	2652	3000	1796	IEN 90 C		Contract of	1306	0054	2802	1489	N PRE-B	8063	4567		10994 3699 1406
	STEMS + LEAVES ABOVE BELOW CUT CUT		or Tub A	1048	1328	1762	1538	TO 15	1		1231	1202	1671	1105	H	1007	1959	TO 15 CM,	1371 2852 1877
	ABOVE GROUND		15 CM	4442	3979	4761	3334	CM ONCE,		· · · · · · · · · · · · · · · · · · ·	9527	1555	1677	2594	TO 15 CM		6527	SO CM C	12364 6552 3283
100	PLANT HEIGHT	E)		Section 1	78	97	88	THEN		•		40	200	09		. !	93	CUT TO 1	206
100 miles	LIVE	- n/m ²		167	91	172	147	50 CM TO			130	1/0	156	70	2		199	15 CM, E	59 102
	STEMS DEAD I			. 5	11	81	75	15 CM,				2	75	707	2		108	EACH ONCE,	86 86
IN-VI	DE MAT	A COLUMN TO A			91 16			TWICE,				12	89	27			54 64 65 74	E, THEN 75	54
IN-VITEO	A C	3-6			76.3			TWICE, THEN 75 CM				. I.	. 2.	2.98			64.3 1.40 74.1 1.94	75 CM CUT	3.16
TOTAT.	NITROGEN OVE BELOW UT CUT						1.71 1.30	5 CM TO 15						98 1.95			1.08 1.08 1.08	H	15 0.35 1.64 1.72
	A B						0 2.03	3						5 4.72			6.14 1 4.32	5	5 7.85
	LEAF AREA INDEX VE ABOVE BEI						3 2.04							2 4.73			6.14		5 7.88 3 5.56 5 2.07
	TE BELOW						4 0.01			•				3 0.01			0.00		0.03

TABLE XVII (Continued)

MITROCEN ABOVE BELOW ABOVE ABUND 1,25 0.29 7.45 7.45 1,86 1.19 8.80 8.80 2.58 2.08 2.81 3.07 2.68 1.59 5.65 5.74 2.55 0.50 1.95 1.99 2.55 0.64 8.37 8.37 2.43 1.46 4.46 4.51 2.58 1.62 5.04 5.18 3.15 1.50 0.81 0.86		ABOVE			0.14	0.14 M2 SAMPLE	ara						TIN	TM-VITEO		TOTAT.			
BELOW ABOVE BELOW ABOVE PLANT BELOW ABOVE BELOW ABOVE PLANT CUT COLT GROUND HEIGHT LIVE DEAD LIVE DIGEST, CUT CUT CUT GROUND La		COL	STE	1531	LEA	VES	STEMS +	- LEAVES						DRY		DCEN	LEA	P AREA I	NDEX
ONCE, THEN BOOT CUT TO 8 CM O 21722 1048 22769 262 69 0 100 1.25 0.29 7.45 7.45 7.45 1.29 1.29 8.80 8.80 1.4 12709 1586 14294 156 145 54 79 1.86 1.19 8.80 8.80 8.80 1.4 12709 1586 14294 156 145 54 79 1.86 1.19 8.80 8.80 0.2 1.4 12709 1586 14294 156 145 54 79 1.86 1.19 8.80 8.80 0.2 1.1 1335 782 2117 10 15 CM 111 1335 782 2569 6297 95 307 108 74 2.68 1.59 5.65 5.74 0 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4 1.4	DATE	M2 SAMPL		4000	ABOVE	BELOW	ABOVE	BELOW			LIVE				M	BELOW	ABOVE	ABOVE	BELOW
ONCE, THEN BOOT CUT TO 8 CM 0 21722 1048 22769 262 69 0 100 1.25 0.29 7.45 7.45 14 12709 1386 14294 156 145 54 79 1.86 1.19 8.80 8.80 E. BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 111 1335 782 2117 . 121 0 100 . 2.58 2.08 2.81 3.07 61 3728 2569 6297 95 307 108 74 2.55 0.50 1.95 1.99 TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 A7 3233 1830 5063 83 194 75 CM CUT TO 15 CM ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 25 3.15 1.50 0.81 0.86 67 22 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86		1	1 1	1 1	1	ha	1 1 1		8 8	8	- n/n			1 1		11			
0 21722	GT 10: 5	O-CM CROWTH	TOO E	15-CM	STUBBLE	ONCE, 1	THEN BOOT	r cur to	8 CM										
0 21722 1048 22769 262 69 0 100 1.25 0.29 7.45 7.45 14 12709 1586 14294 156 145 54 79 1.86 1.19 8.80 8.80 THE BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 111 1335 782 2117 . 121 0 100 . 2.58 2.08 2.81 3.07 61 3728 2569 6297 95 307 108 74 2.55 0.50 1.95 1.99 TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.60 0.81 0.86 8.18 86 3337 2171 5508 91 205 86 70 2.58 1.50 0.81 0.86 6.	11 JUNE	893		•															
14 12709 1586 14294 156 145 54 79 . 1.86 1.19 8.80 8.80 THE BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 111 1335 782 2117 . 121 0 100 . 2.58 2.08 2.81 3.07 61 3728 2569 6297 95 307 108 74 2.55 0.50 1.95 1.99 TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 1830 2063 83 194 75 CM CUT TO 15 CM ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 186 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 86 3337 2171 5508 91 205 86 70 2.58 1.50 0.81 0.86	12 AUG		16544	1048	2177	0	21722	1048	22769	262	69	0	100	•	1.25	0.20	2.45	7 65	. 0
111 1335 782 2117 . 121 0 100 . 2.58 2.08 2.81 3.07 61 3728 2569 6297 95 307 108 74 2.55 0.50 1.95 1.99 1.09 1.05 2361 4026 51 178 140 56 . 2.55 0.50 1.95 1.99 1.09 1.05 2361 4026 51 178 140 56 . 2.55 0.50 1.95 1.99 1.09 1.05 2361 255 108 16 90 63.6 1.46 0.64 8.37 8.37 8.37 8.37 8.37 8.32 1830 5063 83 194 75 CM CUT TO 15 CM CUT TO 15 CM CUT TO 2 CM ONCE, THEN 75 CM CUT TO 15 CM CUT TO 2 CM ONCE, THEN 75 CM CUT TO 15 C	12 OCT		7639	1572	2070	14	12709	1586	14294	156	145	54	79		1.86	1.19	8.80	8.80	0.00
111 1335 782 2117 . 121 0 100 . 2.58 2.08 2.81 3.07 61 3728 2569 6297 95 307 108 74 2.68 1.59 5.65 5.74 36 1665 2361 4026 51 178 140 56 2.55 0.50 1.95 1.99 TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 47 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 486 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 86 3337 2171 5508 91 205 86 70 2.58 1.50 0.81 0.86	GT 11: 5(O-CM GROWTH	1 CUT 15-	-CM STU	BBLE ONC		COT	00	CE, THEN	75 CM		15 CM							
61 3728 2569 6297 95 307 108 74 2.68 1.59 5.65 5.74 36 1665 2361 4026 51 178 140 56 2.55 0.50 1.95 1.99 TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 1 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 47 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	11 JUNE		63	129	1272	111	1335	782	2117		121	0	100		2.58	2.08	2 81	3 03	20 0
61 3728 2569 6297 95 307 108 74 2.68 1.59 5.65 5.74 36 1665 2361 4026 51 178 140 56 2.55 0.50 1.95 1.99 TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 47 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	12 AUG								1 1 1 1 1			100				2	10.1	0.0	07.0
36 1665 2361 4026 51 178 140 56 . 2.55 0.50 1.95 1.99 TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 47 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	9 SEPT		1119	2508	2608	19	3728	2569	6297	95		108	76		2.68	1 50		47.2	. 0
TWICE, BOOT CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 47 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	19 OCT		667	2325	1166	36	1665	2361	4026	51	X,	140	56		2.55	0.50	1.95	1.99	0.03
14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 47 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	T 12: 50	D-CM GROWTH	CUT TO	15-CM	UBBLE	TWICE,	BOOT CUT	TO 8		THEN 75	CM CUT	2							
14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 8.37 8.37 8.37 8.37 8.37 8.37	11 JUNE																		
14 15396 1220 16616 255 108 16 90 63.6 1.46 0.64 8.37 8.37 47 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	18 JUNE					1983						•							
A7 3233 1830 5063 83 194 75 72 77.1 2.43 1.46 4.46 4.51 ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	17 AUG	14362	10312	1206	5084		15396	1220	16616	255	100	14							
ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN 75 CM CUT TO 15 CM 86 3337 2171 5508 91 205 86 70 2.58 1.62 5.04 5.18 29 789 2020 2809 44 210 102 67 3.15 1.50 0.81 0.86	28 SEPT	1947	1055	1783	2178		3233	1830	5063	83	194	75	72 7	77.1	2.43	1.46	4.46	4.51	0.00
AUG 16061	T 13: 50	D-CM GROWTH	CUT TO	15-CM		ONCE,	ARLY BLO		TO 8 CM		IEN 75 (CM CUT	2	E C					
SEPT 2532 1116 2085 2221 86 3337 2171 5508 91 205 86 70 . 2.58 1.62 5.04 5.18 OCT 840 165 1991 624 29 789 2020 2809 44 210 102 67 . 3.15 1.50 0.81 0.86	11 JUNE		٠																
SERT 2532 1116 2085 2221 86 3337 2171 5508 91 205 86 70 . 2.58 1.62 5.04 5.18 OCT 840 165 1991 624 29 789 2020 2809 44 210 102 67 . 3.15 1.50 0.81 0.86	TO VICE									•									
001 040 L03 1991 624 29 789 2020 2809 44 210 102 67 . 3.15 1.50 0.81 0.86	14 SEPT		1116	2085	2221	98	3337	2171	5508	91		98	70		2.58	1.62	5.04	5.18	0.13
	130 61		105	1661	624	29	789	2020	2809	44		102	29		3.15	1.50	0.81	0.86	0.04

TABLE XVII (Continued)

TOTAL.	34	CUT CUT CUT CUT GROUND CITY	1			16 0.23 10.63 10.63 0.00 0.00 0.01 0.01 0.01		2.08 3.19 3.45	1.12 5.78
TR-VITED		LIVE DICEST.	2	T CUT TO 15 CM		88 74.4 2.06	T TO 8 CM	100 . 2.17	63 74.7 1.63
		PLANT STEMS HEIGHT LIVE DEAD	cm - n/m2 -	MGT 14: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE, EARLY BLOOM CUT TO 8 CM ONCE, THEN PRE-BOOT CUT TO 15 CM		127 221 38	NCE, THEN BOOT CUT TO 8 CM	. 137 0	137 136 79
	TIELD	BELOW ABOVE CUT GROUND		CUT TO 8 CM OI		2095 10689	EARLY BLOOM CUT TO 8 CM ONCE,	814 2271	2016 8841
WPLE	STEMS +	ABOVE	- kg/ha	EARLY BLOOM		8593 20		1457 8]	6824 201
0.14 MZ SAMPLE	121	ABOVE BELOW CUT CUT	kg/ha	TUBBLE ONCE,	5590 0	4008 32	TUBBLE ONCE,	1324 104	3112 0
	STEMS	CUT CUT		TUT TO 15-CH S		4585 2063	TUT TO 15-CM S	133 710	3712 2016
200		M2 SAMPLI		SO-CM GROWTH (893	5063	MGT 15: 50-CM GROWTH CUT TO 15-CM STUBBLE	NE 887	5477
		DATE		MGT 14:	11 JUNE 13 AUG	2 00	MCT 15:	11 JUNE	2 00

TABLE XVIII

HARVESTED YIELDS, ABOVE AND BELOW CUT YIELDS OF STEMS AND LEAVES, PERCENT IVDMD AND TOTAL N, AND SOME MORPHOLOGICAL CHARACTERISTICS OF FS-531 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

	ABOVE			0.14	HZ SAM	PLE			7.78				-VITRO	TOI	OTAL		S. 1 18 1000	3
	C T T T T T T T T T T T T T T T T T T T	STEMS	(S	LEAVES	VES	STEMS +	- LEAVES	YIELD					DRY	MITR	OCEN	TEV	LREA	INDEX
	YIELD,	ABOVE	100	ABOVE	BELOW	ABOVE	BELOW	ABOVE	PLANT	83	STEMS	26 5	NTTER	ABOVE	13	ABOVE /	ABOVE	BELOW
DATE	HA SAMPLE	COL	18	COL	COL	COI	4	GKOUND	- 12	LIVE DEAD	DEAD	CIVE D	ICESI.	100	כמד	COT	GROUND	COL
	1 1 1		1	kg/l	1	- kg/ha			5	- n/m2 -	- 7	1	2	1	1 1			
MGT 5: E	EARLY BLOOM CUT TO 8-CM STUB	CUT TO	8-CH ST	UBBLE														
26 JULY	.X 23660	22773	1525		0	31972	1525		263	108		100	52.4	0.83	0.82	14.87	14.87	0.00
100 9		7159	1698	4160	7	11319	1705	13024	220	19	54	S	6.09	0.99	0.62	7.34	7.34	0.00
MGT 19:	MGT 19: 90-CM GROWTH CUT TO 15-CM	TH CUT IN	0 15-CM	STUBBLE	S ONCE,	THEN BOOT	OT CUT TO	0 8 CM										
21 JUN	IE 3832	1881	893		126	4758	1019	5777	116	86	0	100	75.7	2.82	2.25	6.81	96.9	0.14
6 SEPT	-		922	3574	0		922	11812	255	59	=======================================	88	56.7	1.26	1.07	4.76	4.76	0.00
7 OCT	587	319	972		0		972	2009	48	81	32	71	85.5	2.87	1.19	1.65	1.65	0.00

TABLE XIX

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF FS-531 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1976

l'e	DRY MATTER COABOVE CUT	ATTER C	OI		ED BY	MEAN	CLER P	PRIMARY CULM AND TILLER MERISTEMS MIN.	11 - 1 1 Wall	MEAN	AXILLARY TILLER MERISTEMS	LER MERI	STEMS MAX.	AXILLA	RY TILL	AXILLARY TILLER ORIGINS EAN MIN. MAN	INS MAX.
COI SIEMS LEAVES	STEMS LEAVE	LEAVE	1 2	2.6	STEMS LEAVES	HEIGHT!		n/m2	HEIGHT	HEIGHT	number n/m2	HEIGHT	HEIGHT	HEIGHT N	NUMBER n/m2	4	HEIGHT
50-CM GROWTH CUT TO 15-CM STUBBLE	-CM STUBBLE	BBLE															
0.14 3.2		60.5		31.7	4.5	1.8	10.8	0.8	3,3		0.0				0		
0.15 11.4		46.0		36.8	5.8	3.5	11.0	1.1	5.7		0.0			•	000		
0.21 9.6		45.8		36.7	7.9	3.9	12.5	0.5	8.6		00			•			
0.49 8.7		39.9		34.4	17.0	6.1	13.5	2.0	10.6		0.0		•		000		
0.04 7.0		27.9		62.1	3.0	6.7	0.6	6.6	9.8		0.0				000		
0.03 2.5		31.1		9.49	1.8	5.8	10.0	1.0	9.6	0.7	2.0	0.2	2.0	2.0			
0.01 10.2		41.9		47.3	9.0	8.5	7.5	4.5	14.8		0.0				0.0		0.0
1.64 0.01 24.2 29.0		29.0		46.5	0.3	22.2	5.0	0.9	50.8	12.8	0.7	5.5	20.0	4.0	0.7	3.0	5.0
MCT 2: 90-CM GROWTH CUT TO 15-CM STUBBLE	-CM STUBBLE	BLE															
0.08 26.1		48.3		23.8	1.9	21.0	10.0	13.0	27.3		0.0				0.0		
17.2		44.0		32.7	6.1	5.4	14.0	0.3	17.0		0.0				0.0	4	
23.0		42.1		34.1	0.8	14.8	7.5	2.8	26.6	4.0	0.5	4.0	4.0	1.0	0.5	1.0	1.0
0.02 25.0 42.4		42.4		31.9	0.7	14.2	10.7	0.7	35.2	2.6	2.0	2.3	11.3	4.5	2.0	2.3	7.0
14.3		35.1		25.0	1.0	10.7	10.5	1.1	26.1	5.2	4.5	0.8	14.8	4.0	4.5	2.0	5.6
CUT TO 15-CM STUBBLE	STUBBLE																
42.2		42.4		14.4	1.0	54.5	9.5	9.9	72.0		0.0				0		
41.5		34.4		23.7	0.3	64.5	9.3	1.4	117.8		0.0			•			
0.04 4.9 26.1		26.1		66.4	5.6	4.8	10.0	1.5	10.8	2.7	0.9	9.0	7.3	2.0	0.9	0.8	3.0
TO 8-CM STUBBLE	8																
0.40 0.00 68.2 27.6 0.57 0.00 52.4 30.1		27.6		4.2	0.0	211.0	8.0	155.0	269.0	36.7	0.0	16.2	57.3	2.0	0.0		
MGT 5: EARLY BLOOM CUT TO 8-CM STUBBLE	1 STUBBLE	M															
68.6		25.6		5.8	0.0	184.9	11.5	81.5	268.5		0.0		•		0.0		
0.00 44.9 34.3	44.9 34.3	34.3		20.8		46.1		3.0	109.3	12.8	2.3	2.3	30.0	2.5	2.3	1.3	3.8
MGT 6: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	-CM STUBBLE ONCE,	BLE ONCE,	-	THEN	20-CH CI	CUT TO 15	Œ										
												•		•			
0.06 23.7 51.9		51.9		22.8	1.5	4.8	15.5	0.2	23.9		0.0	0.0			0.0	٠	
20.9		40.9		36.7	1.5	10.0	16.0	0.0	31.0	2.0	0.0		. 0		0.0		. '
17.2		35.4		47.2	0.2	13.1	13.7	6.0	38.5	7.3	5.7	0.4	20.0	4.0	5.7	1.7	7.7

TABLE XIX (Continued)

1	MAX. HEIGHT					0.1		1.3					9.01				00	3.5	.5								4.3
TOTA	IT HEI	- cm -																									
0 041	MIN. HEIGHT	1				1.0	•	1.3				· William	2.5				1.1	0.8	0.5								0.5
SWIDIGO GRITT WAS LITTA	UMBER	n/m2				0.5	0.0	0.5	0.0			0.0	6.5			0.0	8.5	4.5	2.5			0.0	0.0		0.0		10.5
AYTTA	MEAN HEIGHT NUMBER					1.0		1.0					6.5				6.5	2.0	1.0								2.5
STEMS	MAX. HEIGHT	- cm -	S CM			1.0		7.3					43.8	C.			17.5	0.6	16.0								16.0
THE MERT	MIN. HEIGHT		CM TO 15			1.0	•	7.3					0.3	CUT TO 15			0.3	1.5	8.0						٠		0.8
AXILLARY TILLER MERISTEMS	NUMBER	n/m2	THEN 75			0.5	0.0	0.5	0.0			0.0	6.5	75 CM CL		0.0	8.5	4.5	2.5			0.0	0.0		0.0		10.5
AXTL	MEAN		, TWICE,	•		1.0		7.3			100 m		9.1	ONCE, THEN			4.5	6.4	11.9								6.3
	MAX. HEIGHT	- cm	TO 15 CM,			1.91	15.1	15.5	37.3			26.8	69.5	CM, EACH ON		43.8	22.5	19.0	19.8		•	90.5	123.8	TO 15 CM	3.4		20.0
M AND	MIN.		50 CM			0.3	0.3	1.1	1.5				0.5	TO 15 CM,				2.0					0.5 1	CH CUT 1	6.0		0.2
PRIMARY CULM AND	MEAN MIN. HEIGHT! NUMBER HEIGHT	n/m2 -	THEN 90 CM TO 15 CM ONCE, THEN					10.0		CH		8.7		CM CUT TO		5.5 6							13.5	THEN 75 C	11.3		28.5
PRIM	1/ NO	n/	M ONCE			16	14	10	9	TO 15 CM		80	18	50 CM		5	17	6	12	8 CM		9	13		11		28
	MEAN	CI	0 15 C			3.4	3.0	7.4	13.7			70.9	21.3			114.1	6.6	6.6	8.5	CUT TO 8		197.6	53.9	CM ONCE,	1.9		8.6
D BY	CUT	1 1 1	O CM I			4.4	2.5	8.0	1.5	THEN PRE-BOOT CUT		0.0	0.5	T TO 1		0.3	1.0	0.7	4.0	BOOT C		0.0	0.1	TO 8	5.3		0.0
NIRIBUTED BY	BELOW CUT STEMS LEAVES	%				44.4	55.1	33.9	45.1			19.8	29.7	-BOOT CUT TO 15 CM,		10.8	42.5	56.3	53.9	E, THEN		4.7	11.4	BOOT CUT	32.1	•	40.8
DRY MATTER CO	ABOVE CUT STEMS LEAVES	1 1 1 1	BLE ONCE			41.2	34.4	48.2	33.8	BLE ONCE		33.8	37.1	BLE, PRE		33.2	37.9	29.5	33.9	BBLE ONC		22.7	35.4	E ONCE,	59.5		40.9
DRY M	STEMS	1 1 1 1 1	CM STUB			10.01	8.0	17.1	19.6	CH STUB		46.4	32.8	CM STUB		55.7	18.6	13.8	11.7	-CM STL		72.6	53.1	STUBBI	3.1		17.3
TEM	BELOW		TO 15-			0.10	0.04	0.05	0.03	TO 15-		00.0	0.01	TO 15-		0.05	0.02	0.01	0.01	T TO 15		0.00	0.01	F 15-CM	0.16		0.02
LEAF/STEM RATIO	ABOVE B		ROWTH CUT					2.83		ROWTH CUT				ROWTH CUT				2.38		GROWTH CUT		0.31	0.66 · 0.01	GROWTH CUT	22.28 0.16		2.40
	DATE		MCT 7: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE	11 JUNE	28 JUNE	19 JULY	2 AUG	26 AUG	5 oct	NGT 8: 90-CM GROWTH CUT TO 15-CM STUBBLE ONCE.	21 JUNE	17 AUG	12 OCT	MCT 9: 50-CM GROWTH CUT TO 15-CM STUBBLE, PRE-	11 JUNE	19 JULY	17 AUG	3 SEPT	19 OCT	MGT 10: 50-CM GROWTH CUT TO 15-CM STUBBLE ONCE,	11 JUNE	12 AUG	12 ocr	MCT 11: 50-CM GROWTH CUT 15-CM STUBBLE ONCE,	11 JUNE	12 AUG	9 SEPT 19 OCT
			MCT							MCT				MCT						MGT				MGT			

TABLE XIX (Continued)

TABLE XX

LEAF/STEM RATIO, CONTRIBUTIONS OF PLANT PARTS TO DRY MATTER PRODUCTION, AND CULM AND TILLER CHARACTERISTICS OF FS-531 AT EACH HARVEST OF DIFFERENT MANAGEMENTS, YEAR 1977

1	1.5	1		THE PORT			0 00	
SWIDIGO GELLIT VON TITAY	MAX.	- mu					11.0	
	MIN.	The state of the s					0.11	
	IIMRER	n/m2	n/m2 0.0 0.0		0.0			
	MEAN MIMBER HEIGHT HEIGHT	cm n/m2					5.5	
AXILLARY TILLER MERISTEMS	MAX.	- CM -				. ,	7.5	
	MIN. HEIGHT	HEIGHT NUMBER HEIGHT HE				. 4 .u 0 .u		
	NUMBER	n/m2		0.0		0.0	2.0	
	MEAN			••		6.3		
PRIMARY CULM AND TILLER MERISTEMS	MAX.	4 1		242.0		47.8	18.5	
	MIN. HEIGHT			110.8	28.3		20.0 31.0 4.5	
	MIN. NUMBER HEIGHT	n/m2		10.0		8.0	7.5	
	MEAN HEICHT1/			181.3	UT TO 8 (36.0	0.6	
DRY MATTER CONTRIBUTED BY	1 100	1		0.0	BOOT CI	2.2		
	STEMS LEAVES	% cm		4.6	E, THEN	15.6	49.2	
	LEAVES	1	w	27.4	BBLE ONC	49.6	35.2	
	ABOVE CUT STEMS LEAVE		STUBBL.	68.0 27.4 54.6 32.1	-CM STU	32.6		
STEM	BELOW		TO 8-C	0.00	UT TO 15	0.14	0.00	
LEAF/STEM RATIO	ABOVE		SLOOM CUT	0.40	GROWTH C	1.52	2.33	
	DATE		MGT 5: EARLY BLOOM CUT TO 8-CM STUBBLE	26 JULY 6 OCT	MGT 19: 90-CM GROWTH CUT TO 15-CM STUBBLE ONCE, THEN BOOT CUT TO 8 CM	21 JUNE 6 SEPT	7 OCT	

Rodney Joseph Creel was born in La Rochelle, France on January 15, 1952. He is the son of Major and Mrs. Adonis Creel and traveled with them on tours in the Army. He graduated from Lewis County High School in Hohenwald, Tennessee.

In March of 1976 he received the Bachelor of Science in Plant and Soil Science from the University of Tennessee. A graduate research assistantship was accepted from the Department of Plant and Soil Science at the University of Tennessee, and he received the Master of Science degree in December 1978.

He was married to Vicky Wolfe in June 1978 and is currently working with the Extension Service as an Assistant Extension Agent in Loudon County. He is a member of the American Society of Agronomy and Gamma Sigma Delta.