Effect of Rubber Resilience on the Operation of the Spiral Rubber Wiper Defoliator 1966 Work

The spiral rubber wiper defoliator, Figure 1, was conceived in spring of 1954 and operated in the field that same summer. In numerous field tests since that time it has been found to be a simple and effective device for removing leaves from approximately the lower half of the stalk. The knife defoliator is superior for removing the upper leaves. Success and adaptability of the spiral rubber wiper (SRW) to removing the lower leaves is due, at least in part, to the flexibility of the rubber web which allows for misalignment of the plant, resiliency of the material thus reducing stalk and leaf damage and simplicity of design which makes it adaptable to operating in the abrasive environment close to the ground.

In operation, two SRW units are used, one on each side of the row so that the plant stalk can pass between them, Figure 2. There may or may not be a gap between them depending on the severity of the desired action. In some cases the webs of the two units may overlap by as much as one inch. In essentially all cases some deflection of the web is necessary for the stalk to pass, being largest when the webs are overlapped most. Web deflection is limited to the general area of the wiper in contact with the stalk. That is, a deflection wave moves with the stalk as it progresses through the defoliators. Hardness (durometer) of the rubber material in the defoliator determines the extent to which the deflection is localized around the stalk and the amount of overlap possible without impeding the passage of stalks between the defoliators.

For field operation the units are mounted at an angle to the horizon. The

front end is higher than the rear and is fitted with a divider to separate the leaves to be harvested from those to be left on the stalk. For effective harvest, all parts of those leaves to be harvested must pass beneath the de defoliator. Some difficulty has been experienced with varieties or crops on which the leaves grew upward at a small angle to the stalk. Leaves on such plants tend to pass through the defoliators with part of the midrib and the petiole below the defoliator in the swath area but with the main portion of the laminar above the defoliator. Leaf damage results especially to the foliar material on the petiole and the butt end of the leaf.

Because of the possible effects of defoliator design and rubber durometer on harvesting efficiency a set of experiments was set up to measure the effects of these variables. Three hardnesses of rubber material were used. These were, from softest to hardest 40-50, 50-60 and 70-80 durometer. Three sets of defoliators were made from the hard and intermediate material and two sets from the soft material. One extra set, except for the soft material, were modified by cutting slits along the axis to relieve some of the stress from twisting into a spiral. The other extra sets were modified by slicing the web part-way through from each side along the edges which came into contact with the plant. This was done to facilitate deformation of the material by the stalk and allow the material to conform more closely to the stalk.

The units were tested in plots of G-36, C-319, NC 2512 and NC 2326 varieties growing on the Central Crops Research Station, Clayton, N. C. during the summer of 1966. Evaluations were made of elevator loss, stalk loss, damage and total harvesting losses plus damage.

2

# Results and Discussion

There was little difference in the overall performance of the hard and soft rubber wiper units, Table 1. The defoliators made of intermediate hardness material gave results in the same general range as the hard and soft materials. These results indicate that there is a large amount tolerance available in the design and operation of SRW defoliators.

It should be noted that leaf damage (next to last column of Table 1) was approximately three to five percent with a few values between five and six percent. Stalk loss and elevator loss made up the rest of the value shown in the total loss plus damage column except for a small amount of operator errors which was present in some of the runs. Under the present acreage-poundage allotment program elevator and field losses would not represent severe disadvantages because the procedures could plant extra acreage to make up for it. Cost of these losses would be the cost of producing this extra tobacco up to the point of harvesting. A realistic estimate would be 15¢/lb. or less than 1/4 of the value of the losses.

Stalk losses were quite high at the first of the season. The sand lugs were badly burned and sun scalded due to hot dry weather so the data starts A with the leaves just above the lugs as priming 4. These leaves were attached to the stalk at an acute angle thus making it difficult for the defoliator dividers to separate the ripe swath from the rest of the plant. Because of this, difficulty was experienced in stripping the lamina off some of the leaves. As these leaves were folded up along the stalk the wipers were free to strip part

3

Variety	Defoliator	Priming				
			Elevator Loss, %	Stalk Loss %	Leaf Dam- age %	Total loss plus Damage %
G 36	Hard					
		A	2,93	16.05	5,95	25.67
		В	3.99	3.01	4.29	11.53
		c	2.06	0.81	3.19	6.07
	Soft					
		A	7.42	15.73	5.77	30.82
		В	1.73	1.02	4.99	7.78
		С	2.81	1.58	3.70	8,05
C-319	Hard					
		A	3.03	12.06	5.59	21.14
		В	2.53	1.21	4.67	8.42
		С	2.52	0.77	2.63	5.59
	Soft					
		A	4.92	17.39	5.70	28.26
		В	1.40	1.48	3.92	11.25
		C	1.64	0.65	2.30	5.59
N.C.2512	Hard					
		A	2.69	19.10	5.10	26.92
		В	2.34	4.15	3.55	10.28
		С	3.96	2.14	2.98	9.08
	Soft					
		A	2.29	19.50	4.14	27.02
		В	3.13	0.63	4.84	7.94
		С	3.86	0.91	2.10	6.91
N.C.2326	Hard					
		A	4.50	20.16	2.87	27.86
		В	7.97	5.38	2.52	15.89
		С	0.49	1.94	2.41	4.84
	Soft					
		A	6.04	6.54	3.65	16.31
		В	4.20	4.65	2.95	13.60
		C	1.67	3.40	3.69	9.93

Table 1. Effect of Defoliator Design on Leaf Loss and Damage.

of the lamina and have the midrib and the rest of the lamina on the stalk. The severity of this action expressed as a percentage of the harvested leaves is given in Table 2.

	Table 2.	. Effect Materi	of Rubber H al from Leav	ardness on S es Left on S	tripping of talk, N.C.	f Lamina 2326 Variety.
		Row 1			Row 2	
Defoliator	Rep 1	Rep 2	Rep 3	Rep 1	Rep 2	Rep 3
Hard	24.8	3.15	22.1	22.6	20.1	20.5
Soft	32.5	30.7	39.3	36.2	40.0	23.9

Leaf angles of the lower leaves to the stalk are given in Table 3. These angles increased later in the season after several rains.

> Table 3. Leaf Angle at Time of Priming A. Average Values Two Inches From Base of Petiole.

Variety	G 36	C 319	N.C. 2512	N.C. 2326
Angle	31.3°	35.5°	337.5°	30.7°

There were no appreciable differences in the harvesting efficiency of the defoliators with and without sliced edges. Also slitting and removing material along the axis of the wiper blade did not improve its action.

# Summary

Field tests of the effects of rubber resiliency on the operational effectiveness of spiral rubber wiper defoliators showed that variations in durometer values from 40 to 80 units did not appreciable affect the results. The adverse effects of acute angles between the stalk and the leaf were evident, variations in the design of the defoliator with respect to edge slicing or central slits did not produce detectable changes in the operating characteristics.

Additional work to determine if durometer value has an effect on the harvesting characteristics of a more normal crop of tobacco is recommended.

Average Overall To Loss of Reps 1,2+3 VARIETY INC 2326 (f" clear Consistency of Deflaiator Primming Very HARD AND 29.44 43.22 42.20 0 E Hard Red + Green ( Plain) 18,79 26.31 27.85 Hard Green & yellow (Edges Slice) 15.00 24.24 34.33 (only one neg Hard (Red + Blue Slits in middle 19,20 25.87 27.84 Medium (Green) 36,03 23.07 28,55 Medium (Blue) Sliced on Edges 38,25 29.84 26,10 Medium (Red+ gellas) Slits in meddle 42,44 34.98 25.04 Soft (Red) Plain 40.26 28.59 16.31 Soft (Yellow) Sliced on Edges 40.74 44.68 32.60 10

EFFECT OF RUBBER RESILIENCE ON THE OPERATION

1967 Wok

C. W. Suggs February 15, 1968

This work performed during the summer of 1967, represents an extension of the investigations made during the summer of 1966. At that time special rubber wiper defoliators of hard (70-80 durometer) and soft (40-50 durometer) were tested over four varieties of flue cured tobacco. Results indicated that the operation was not sensitive to the bardness of the rubber used in the construction of the defoliator. The 1966 growing season was dry and the crop produced what was typical of dry weather tobacco in that the leaves were inclined upward with an angle between the midrib and the stalk of 30° to 40°. This made it difficult for the equipment to divide the leaves into those which were to be removed and those which were to remain on the stalk. As a result, there was considerable stripping of leaf lamina from the midrib and in general, poor operation of the equipment, especially at the first priming. For this primary the total of the losses plus damages ran from 16% to 30%. Considerable reduction in this value were realized progressively at the second and third primary as the leaves flattened out, with observations being as low as 5%.

It was felt that, because of the dry weather characteristics of the 1966 crop, it would be desirable to repeat the experiment in 1967. The defoliator materials used were extra hard (above 80 durometer), hard (70-80 durometer), medium (50-60 durometer) and soft (40-50 durometer). Two sets of the hard and medium units were used. One set of each had the edges which come in contact with the plant sliced part way through from each side. This was done to facilitate deformation of the rubber material by the stalk and allow the material to conform more closely to the stalk in an effort to increase the percentage of the leaves removed. The other sets were slit and some material removed along the axis to relime some of the stress which arrise when the material is twisted into a spiral. There was also a very hard plain set and a medium hard plain set of defoliator units in the test. Nominal diameter of all the units was 5" except for two large units which were  $6\frac{1}{2}$ " in diameter.

All of the defoliators except one which is \$6 designated in the table of results were mounted and run on a modified Powell tobacco harvester. The exception was run on a Harrington machine. Units were mounted so that there was approximately 1/2" overlap between the web of the lift and right hand units. This overlap was provided to bring the defoliator webs into more aggressive engagement with the leaves.

The tobacco crop was of the N.C. 2326 variety produced in accordance with normal practices. Some leaching of fertilizer due to heavy rains during the growing season limited the plants to less than normal growth. Excellent stands resulted in a uniform crop. Harvesting was started on July 28 and ran through the first three primings.

# **Results** and **Discussion**

Results are presented in table 1 to indicate the response of the hardness and sizes of defoliators with respect to elevator loss, stalk loss, leaf amage, and total loss plus damage.

<u>Elevator loss</u>. There are no indications that defoliator type had any effect on elevator loss. For the Powell machine the average values ran from 5.0% to 7.2%. It is unlikely that this range is due to the defoliator because variations greater than this were observed within the data from a single unit.

- 2 -

There does, however, appear to be a significant reduction in elevator losses on the Harrington machine where the losses are about 0.8%. Because only limited observations are available, additional runs should be made to determine if the conveying and elevating arrangements of this machine offer additional promise.

Stalk loss. Lowest average value of stalk loss (3.2%) was achieved with a medium hard setfunits which had the edges sliced to improve deflection at the point of stalk contact. The largest value (6.4%) was found for both the very hard and the soft units. There did not appear to be any difference between the medium and the hard units nor between the center relieved and edge sliced configurations. In fact, a plain hard unit appeared, based on a few observations, to operate about the same as the two hard units included in the table. The wide medium hard unit performed similarly to the narrower medium and hard units.

Leaf damage. None of the units imparted significant damage to the leaf with values ranging between 0.5% and 2.3%. These values are generally lower than the previous year when only two values as low as 2.3% were observed and most of the values were around 4 to 5%. This may be due in large part, to a difference between the two crops caused perhaps by the dry weather of the previous year as compared to an excess of moisture for the current year.

Because of the variability of the individual data it would be difficult to single out any particular unit as superior with respect to leaf damage. In fact, all of the units worked quite well and inflicted only minimal damage to the leaves.

Total, loss plus damage. This measure of performance is the sum of the elevator losses plus the stalk losses plus the leaf damage. For the Powell

- 3 -

machine this overall measure of response fell between 10.6% and 12.6% regardless of the characteristics of the spiral rubber wiper used. (A single set of data at the third priming resulted in an overall value of 13.9%, however, it is considered to be unreliable because of the shortage of data). For the Harrington machine the overall value was 6.5% which was due to the quite low elevator loss values. As evidenced by the stalk loss and leaf damage values the defoliator appeared to work just as well pt on one machine as the other.

# Summary and Conclusions

A series of spiral rubber wipers constructed of various durometer rubber ranging from very hard (above 80 durometer) to soft (40-50 durometer) was tested in a normally grown field of N.C. 2326 flue cured tobacco over the first three primings. The results showed that elevator loss was the largest single source of harvesting loss or damage, and ranged from 5% to 7.2% except for the Harrington machine which was only a fraction of this value. The Harrington machine had a conveyor belt configuration which was different from the Powell machine.

Stalk losses ranged from 3.2% to 6.6% and appeared to be highest for the very hard and soft defoliators, but independent of the modifications to the edge or axis of the defoliator web. Stalk losses did not appear to be dependent on the conveyor belt configuration of the machine on which they were tested. Leaf damage was quite low and independent of the defoliator rubber composition and the sliced web edges or the stress relief along the axis of the unit.

It can be concluded from these tests that there is a rather wide range of spiral rubber wiper designs and characteristics that will do a good job of leaf removal at an acceptable leaf damage level. There is opportunity for an improvement in elevator design.

- 4 -

Defoliator	Priming	Elevator Loss	Stalk Loss,	Leaf Damage	Total, Loss Plus Damage, %
	A	1.8	4.7	0.7	77.2
Very Hard	B	4.1	9.6	0.5	14.2
Plain	C	9.0	4.9	0.3	14.2
Average	~	5.0	6.4	0.5	11.9
Hard	A	2.4	2.9	1.5	6.8
Middle	B	7.8	5.6	2.9	16.3
Relieved	C	9.4	3.0	0.8	13.2
Average	~	6.5	3.8	1.7	12.0
Hard	A	3.8	3.7	1.0	8.5
Edges sliced	B	6.9	6.8	1.0	14.7
	C	8.5	2.3	0.7	11.5
Average	~	6.4	4.3	0.9	11.6
Medium	A	4.6	4.7	1.5	10.8
Middle relieved	В	6.5	3.9	1.2	11.6
	C	6.8	1.8	0.7	9.3
Average	$\rightarrow$	6.0	3.5	1.1	10.6
Medium	A	3.2	3.3	1.0	7.5
Edges sliced	B	9.9	4.6	0.7	15.2
	C	8.6	1.7	0.9	11.2
Average	>	7.2	3.2	0.9	11.3
Medium	A	3.4	3.9	2.2	9.5
Wide, plain	B	8.5	8.0	3.4	19.9
	C	5.8	1.3	0.8	77.9
Average	$\rightarrow$	5.9	4.4	2.1	12.4
Medium	A	1.0	3.5	3.3	7.5
Wide on Harrington			101.01		
Machine	B	0.6	3.4	1.4	3.4
Soft plain	6	6.5	6.4	1.0	13.9
Average	-	0.8	3.4	2.3	6.5

Defoliator	<u>Priming</u>	Elevator Loss	Stalk Loss,	Leaf Damage	Total, Loss <u>Plus Damage, %</u>
	A	1.8	4.7	0.7	7722
Very Hard	B	4.1	9.6	0.5	14.2
Plain	C	9.0	4.9	0.3	14.2
Average	>	5.0	6.4	0.5	11.9
Hard	A	2.4	2.9	1.5	6.8
Middle	B	7.8	5.6	2.9	16.3
Relieved	C	9.4	3.0	0.8	13.2
Average	\$	6.5	3.8	1.7	12.0
Hard	A	3.8	3.7	1.0	8.5
Edges sliced	B	6.9	6.8	1.0	14.7
	C	8.5	2.3	0.7	11.5
Average	÷	6.4	4.3	0.9	11.6
Medium	A	4.6	4.7	1.5	10.8
Middle relieved	B	6.5	3.9	1.2	11.6
	C	6.8	1.8	0.7	9.3
Average	~	6.0	3.5	1.1	10.6
Medium	A	3.2	3.3	1.0	7.5
Edges sliced	B	9.9	4.6	0.7	15.2
	C	8.6	1.7	0.9	11.2
Average	>	7.2	3.2	0.9	11.3
Medium	A	3.4	3.9	2.2	9.5
Wide, plain	B	8.5	8.0	3.4	19.9
	C	5.8	1.3	0.8	77.9
Average	ラ	5.9	4.4	2.1	12.4
Medium Wide on Harrington	A1	1.0	3.5	3.3	7.5
Machine	B	0.6	3.4	1.4	5.4 Close
Soft plain	C	6.5	6.4	1.0	13.9
Average	->	0.8	3.4	2.3	6.5 10

EFFECT OF RUBBER RESILIENCE ON THE OPERATION

C. W. Suggs February 15, 1968

1967 work

This work, performed during the summer of 1967, represents an extension of the investigations made during the summer of 1966. At that time special rubber wiper defoliators of hard (70-80 durometer) and soft (40-50 durometer) were tested over four varieties of flue cured tobacco. Results indicated that the operation was not sensitive to the hardness of the rubber used in the construction of the defoliator. The 1966 growing season was dry and the crop produced what was typical of dry weather tobacco in that the leaves were inclined upward with an angle between the midrib and the stalk of 30° to 40°. This made it difficult for the equipment to divide the leaves into those which were to be removed and those which were to remain on the stalk. As a result, there was considerable stripping of leaf lamina from the midrib and in general, poor operation of the equipment, especially at the first priming. For this primes as the leaves flattened out, with observations being as low as 5%.

It was felt that, because of the dry weather characteristics of the 1966 crop, it would be desirable to repeat the experiment in 1967. The defoliator materials used were extra hard (above 80 durometer), hard (70-80 durometer), medium (50-60 durometer) and soft (40-50 durometer). Two sets of the hard and medium units were used. One set of each had the edges which come in contact with the plant sliced part way through from each side. This was done to facilitate deformation of the rubber material by the stalk and allow the material to conform more closely to the stalk in an effort to increase the percentage of the leaves removed. The other sets were slit and some material removed along the axis to relime some of the stress which arrise when the **material** is twisted into a spiral. There was also a very hard plain set and a medium hard plain set of defoliator units in the test. Nominal diameter of all the units was 5" except for two large units which were  $6\frac{1}{2}$ " in diameter.

All of the defoliators except one which is  $\infty$  designated in the table of results were mounted and run on a modified Powell tobacco harvester. The exception was run on a Harrington machine. Units were mounted so that there was approximately 1/2" overlap between the web of the lift and right hand units. This overlap was provided to bring the defoliator webs into more aggressive engagement with the leaves.

The tobacco crop was of the N.C. 2326 variety produced in accordance with normal practices. Some leaching of fertilizer due to heavy rains during the growing season limited the plants to less than normal growth. Excellent stands resulted in a uniform crop. Harvesting was started on July 28 and ran through the first three primings.

# Results and Discussion

Results are presented in table 1 to indicate the response of the hardness and sizes of defoliators with respect to elevator loss, stalk loss, leaf damage, and total loss plus damage.

<u>Elevator loss</u>. There are no indications that defoliator type had any effect on elevator loss. For the Powell machine the average values ran from 5.0% to 7.2%. It is unlikely that this range is due to the defoliator because variations greater than this were observed within the data from a single unit.

- 2 -

There does, however, appear to be a significant reduction in elevator losses on the Harrington machine where the losses are about 0.8%. Because only limited observations are available, additional runs should be made to determine if the conveying and elevating arrangements of this machine offer additional promise.

Stalk loss. Lowest average value of stalk loss (3.2%) was achieved with a medium hard set units which had the edges sliced to improve deflection at the point of stalk contact. The largest value (6.4%) was found for both the very hard and the soft units. There did not appear to be any difference between the medium and the hard units nor between the center relieved and edge sliced configurations. In fact, a plain hard unit appeared, based on a few observations, to operate about the same as the two hard units included in the table. The wide medium hard unit performed similarly to the narrower medium and hard units.

Leaf damage. None of the units imparted significant damage to the leaf with values ranging between 0.5% and 2.3%. These values are generally lower than the previous year when only two values as low as 2.3% were observed and most of the values were around 4 to 5%. This may be due in large part, to a difference between the two crops caused perhaps by the dry weather of the previous year as compared to an excess of moisture for the current year.

Because of the variability of the individual data it would be difficult to single out any particular unit as superior with respect to leaf damage. In fact, all of the units worked quite well and inflicted only minimal damage to the leaves.

Total, loss plus damage. This measure of performance is the sum of the elevator losses plus the stalk losses plus the leaf damage. For the Powell

- 3 -

machine this overall measure of response fell between 10.6% and 12.6% regardless of the characteristics of the spiral rubber wiper used. (A single set of data at the third priming resulted in an overall value of 13.9%, however, it is considered to be unreliable because of the shortage of data). For the Harrington machine the overall value was 6.5% which was due to the quite low elevator loss values. As evidenced by the stalk loss and leaf damage values the defoliator appeared to work just as well as on one machine as the other.

#### Summary and Conclusions

A series of spiral rubber wipers constructed of various durometer rubber ranging from very hard (above 80 durometer) to soft (40-50 durometer) was tested in a normally grown field of N.C. 2326 flue cured tobacco over the first three primings. The results showed that elevator loss was the largest single source of harvesting loss or damage, and ranged from 5% to 7.2% except for the Harrington machine which was only a fraction of this value. The Harrington machine had a conveyor belt configuration which was different from the Powell machine.

Stalk losses ranged from 3.2% to 6.6% and appeared to be highest for the very hard and soft defoliators, but independent of the modifications to the edge or axis of the defoliator web. Stalk losses did not appear to be dependent on the conveyor belt configuration of the machine on which they were tested. Leaf damage was quite low and independent of the defoliator rubber composition and the sliced web edges or the stress relief along the axis of the unit.

It can be concluded from these tests that there is a rather wide range of spiral rubber wiper designs and characteristics that will do a good job of leaf removal at an acceptable leaf damage level. There is opportunity for an improvement in elevator design.

1967 Jota Cus Charter

Defoliator	Priming	Elevator Loss	Stalk Loss,	Leaf Damage	Total Loss 1967 Plus Damage, %
	A	1.8	4.7	0.7	7.2
Very Hard	В	4.1	9.6	0.5	14.2
Plain	С	9.0	4.9	0.3	14.2
Average	3	5.0	6.4	0.5	11.9
Hard	A	2.4	2.9	1.5	6.8
Middle	В	7.8	5.6	2.9	16.3
Relieved	C	9.4	3.0	0.8	13.2
Average		6.5	3.8	1.7	12.0
Hard	A	3.8	3.7	1.0	8.5
Edges sliced	B	6.9	6.8	1.0	14.7
	C	8.5	2.3	0.7	11.5
Average	->	6.4	4.3	0.9	11.6
Medium	A	4.6	4.7	1.5	10.8
Middle relieved	В	6.5	3.9	1.2	11.6
	C	6.8	1.8	0.7	9.3
Average	~	6.0	3.5	1.1	10.6
Medium	A	3.2	3.3	1.0	7.5
Edges sliced	В	9.9	4.6	0.7	15.2
	C	8.6	1.7	0.9	11.2
Average	\$	7.2	3.2	0.9	11.3
Medium	A	3.4	3.9	2.2	9.5
Wide, plain	В	8.5	8.0	3.4	19.9
	С	5.8	1.3	0.8	7.9
Average	7	5.9	4.4	2.1	12.4
Medium	A	1.0	3.5	3.3	7.5
Wide on Harrington					10 Section
Machine	В	0.6	3.4	1.4	5.4 10020 40
Soft plain	C	6.5	6.4	1.0	13.9
Average	->	0.8	3.4	2.3	6.5

1															
8 14								_		Au	gust	14,	1967		
													-	-	
							_			Net				_	
-(-)				Total Leaves	Ele	e. Loss		Sta	1K Loss	Dam,	n Bin	Gros	s Dam.	Total	Loss
					No	. º/o	-	No	. %	No	%	No	%	No	%
-	Priming 3	Unit, Rep.	Var. Clearan		-			-	_		_				
-					_			Ť.							
151	red 7	green 1		165	10	6.0%		4	2.9 %	2.30	1.5%	2.30	1.3%	16.30	9.8%
15.8	Marid yel	ann. 2	_	178	12	6.7%		8	4.4 %	0,45	0.2%	0,45	0.2%	20.45	11.4%
139		2	_	182	19	10.4%	_	4	2.1%	0,45	0.2%	0.45	0.2%	23.45	12.8%
126	" wald u			147		710/		~	3:0		1 = 01		14	14.50	1.2 -
171	Mal All	E/10W /		147	12	1.4 10		r	210/	1.65	1.2%	1.65	1.1%	12.65	0.6 10
159	THEY INGO	2 200		170	10	6.3%		5	2.6 10	1.50	0.010	1.50	0,1%	10.50	1010
121				110	10	1.8		5	2018	0.00	0.210	0.35	07	11.05	93
162 /	Yellow × a	reen 1		178	11	6.1%		5	2.8%	170	10%	170	0.9%	17 70	99%
189	Haid de	in elemen 2		215	19	8.8%		7	3.2%	2.30	1.2%	2.30	1.0%	28.30	13.1%
177		3		200	21	10.5%		2	1.0%	0.75	0,4%	0.75	0.3%	23.75	11.8%
- /						8.5			2.3				0.7		11.5
191 1	wide	stuck 1		206	12	5.8%		3	1.4%	1.95	1.0%	1.95	0.9%	16.95	8.2%
297	Medi	2		262	13	4.9%		2	0.7%	2,00	0.8%	2.00	0.7%	17.00	6,4%
247		3		270	18	6.6%		5	1.8%	2.55	1.0%	2.55	0.9%	25.55	9.4%
-						5.8			1.3.		1.1		0.8	d	7.9
146	green.	. 1	_	169	20	11.8%		3	1.7 %	2.30	1.5%	2.30	1.3%	25.30	14.9%
111	med, pla	L 2		127	13	10.2%	-	3	2.3%	0.70	0.6%	0.70	0.5%	16.70	13.1%
-94		3	_	127	18	14.1%	_	2	1.5%	0.50	0.4%	0.50	0.3%	20.50	19.1%
	A SILL	1	-	1.1.1		12.0			1.8				0.7		14.5
126 1	amall 6/0	ick 1		145	15	10.3%	-	10	6.3%	0.45	0.3%	0.45	0.3%	25.45	17.5%
159	very ho	ad plan 2		172	9	5.2%	-	4	2.3%	0.50	0.3%	0.50	0.2%	13.50	7.8%
100		3		121	14	912	-	7	5.190	0.50	0.5%	0.50	0.4%	21.50	17.7%
102 /	RING	1		200	14	[.0 N		~	4.	7.10	100		1 701	00.15	14.0
120 V	Mod sh	1.1.2		180	14	0,770	_	5	1.4 10	5.95	1.0%	5.45	0 701	22.45	11.1 70
142	median	3		162	15	102%	-	7	1.0%	1.50	0.010	1.30	0. (70	19.50	10.510
100		~		102	//	8.4		5	1.7	0.80	0.5 10	0.80	n d	20.80	12.010
88	Red + Bl	1 9		109	17	15.5%		4	26%	170	19%	170	100%	2270	20.8%
142	Hard mis	Il slit 2		155	9	5.8%		4	2.5%	nar	0.6%	nar	D6%	1395	90%
130		3		144	10	6.9%		4	2.9%	0.70	0.5%	0.70	0.4%	14.70	10.2%
						9.4			3.0			2.10	0.8		13.2
268	Red -s	ost 1	>	295	19	64%		0	2.7%	4.20	1.59	4.20	14.01	7120	10 5 %
	plain	2				0.1 10		3		1.20		1.20	1.1 10	51.00	1010 10
124	- 1	3		149	10	6.7%		15	10.0%	0.75	0.6%	0.75	0.5%	25.75	17.2%
						6.5			1.45				1.0		13.9
	_		_	-	_				_	_					
			_		-	-				_	_			_	
-		_			-	_	- Internet		_		_	_	-		
			-		-					-	-				
					_						-				_
-()					_	-	_	_		_			-		
			-	_	_			_		-	-				-
					-			_		-				-	
		2	-	_	_			_	-			1.1	-		
					-	-	_	_	-					-	
								_			-				-

							a dia second	de la	1.1		Ju	ly a	8,19	67	
													1	~	
				1						N	et				
0				Total Leaves	Ele.	Lass		Stalk	Loss	Dam.	in Bin	Gros	s Dam	Total	Loss
					No.	%		No.	%	No.	%	No.	%	No.	%
	Priming 2	Unit Rep	Var. clearance									1.14			
															19.2
136	wide 1	lack 1		165	16	9.6 %		13	7.8%	3.10	2.2%	3.10	1.8%	24.1	# 8%
131	Aied	Plain 2		152	9	5.9%		12	7.8%	11.00	8.3%	11.00	7.2%	282	18.5%
107		3		131	13	9.9%		11	8.3%	1.80	1.6%	1.80	1.3%	25.8	19.6%
						8.5			8.0				3,4		19.9
13.8	red ¥	yellow 1		151	8	5.2%		5	3.3%	2.35	1.7%	2.35	1.5%	15.35	10.1%
115	Med. M.	Idle Slit 2	_	129	8	6.2%		6	4.6%	2.40	2.0%	2.40	1.8%	16.4	12.7%
119		3		135	11	8.1%		5	3.7%	0.55	0.4%	0.55	0.4%	16.55	12,2%
						6.5			3.9		-		1.2		11.6
120	red v l	lue 1	-	138	8	5.7%	_	10	7.2%	1.20	1.0%	1.20	0.8%	19.2	13.9%
119	Hand, M	1084 ship 2		134	11	8.2%		5	3.7%	1.15	0.9%	1.15	0.8%	17.15	12.7%
99		3	_	117	11	9.4%		Z	5.9%	8.50	8.5%	8.50	7.2%	26.5	22.6 %
/162.00	0	int 1		200		1.8		10	5,6		01		2.9		16.3
10.2	Green	vellow 1		208	11	5,2%	-	19	9.1%	4.00	2.2%	9.00	1.9%	34.0	16.3%
14.6	tare pe	ered edges t	-	164	12	1.3%		10	6.0%	1.25	0.8%	1.25	0.7%	23.25	14.1%
1.6.6		3		196	16	8.3 70		10	5,2%	1.00	0.6%	1.00	0.5%	27.00	14.0%
172	Plus	· · · · ·	-	100	1-2	0.1		a	6.8	1.00.0	1 201	1	1.0	0.0.0	14.1
127	MICE	later a		145	15	0.910		7	0.2 10	1.10	1.5%	1.10	1.1%	23.1	16.5 /0
124	nea secu	a gages E		171	13	7.210		5	5.5 70	1.40	1.170	1.40	0.9%	19.4	13.1%
147		2		171	17	9.9		6	4.6	0.15	0.1%	0.15	0.1%	23.15	15.170
121-	cm II RI	- E 1		140	7	4.70		10	10.0%	170	100%	170	0.001	04 7	10 00%
122	Marthan Di	aco :		14.2	8	T.110		10	84%	0.70	0.00	0.70	0.810	20 7	10.70
127	Us grand	Har z		144	2	20%		14	9.7%	0.70	0.5 10	0.70	0.4%	177	17.3 10
/ ~ /				117	0	4.1		11	OF La	0.10	0.310	0.10	125	1.1	1117
		L.				1.1			110						14.00
184	Harringt	on I		190	1	0.5%		5	2.6%	4.80	2.6%	4.80	2.59	10.8	5.6%
205	uide me	d- 2	_	222	3	1.3%		11	4.9%	1.95	0.9%	1.95	0.8%	15.95	7.1%
203		3		209	0	0		6	2.8%	2.00	0.9%	2.00	0.9%	8.0	3.8%
						0.6			3.4				1.4		5.4
													/		
			_												
	-														
_				and the											
_													_		
-			1												
											_	-	-		_
			_		4					_		_	_	-	
-	_		_		_										
						_			_						
					-						_		_		
													_		
_				_	-	_		-					_		_
_					-				_	_	-		-		_
			-										-		_
-	_				-				-			-	-		_

	322											0	2			
100	130							70	6.	Han	ent	2.	19	67	Dei	to -
	1			_	-					new		J	-	-	12001	
							V	/		1911		Da	maje		u	2
							$\wedge$		51	rath	Ner	<u>L</u>	0			
-0-				Total haves	EL	J. Locs	oper.	Emor.	Spel	ReLoss	Dom	in Bir	Brus	Atm	Total	hes .
	0	-			No.	9.	No	9	Nor	2,	No.	2,	No	9,	No	2,
	Triming 1	Unit , Kep	Var cleanar		-			-		_	-	-			In 1.1G	+ 12.6
	Incl	120 00 1	2000	329212+19				_	10.0	F - 01	12.10	_	in la	7 20	1121-	10.00
227	Pulle	plain 1	2 wrig	360	1360	5.5%	-	-	Au	5.2%	324	0.101	366	5.8%	2340	970
Z44	thed	prace 2		264	75	9.2%	-	-	8	2.7%	2 40	2,170	240	£.070	174	6590
				601	/	3.4			0	3.9	6,10	0.170	6.10	2. Z		9.5
311	red	vellow 1	1/2 overlap	345	18	5.2%			16	4.6%	8.60	2.7%	8.60	2.4%	42.60	12.3%
- 29A	Med,	Mutdleslitz		321	14	9.3%	<u> </u>		13	9.0%	3,70	1.190	3.70	1.1%	30.70	9.590
	1	3		273	12	4,3%			14	5.1%	2.75	1,1%	2.75	1%	28.75	10.5%
	here			-		4.6	_	_		4.7				1.5		10.8
356	redv	blue 1		381	11	2.8%			14	3.6%	9:30	2.6%	9.30	2.4%	34:30	9.0%
320	Hard, N	utile shit 2		335	6	1.7%	_		9	2.6%	4.60	1.4%	4.60	1.3%	19.60	5.8%
301	(2)	3		318	9	2.8%			8	2.5%	2.25	0.7%	2.25	0.1%	19.25	1.9
34 3	oreen y	veilou I		380	17	44%			20	52%	6.20	1.8%	6.20	1.6%	432	11.3%
30%	Hard she	ud edges 2		328	10	3.0%			10	3.0%	2.60	0.8%	2.60	0.7%	22.6	6.8%
285	1/2	3		306	12	3.9%	_		9	2.9%	2.30	0.8%	2.30	0.7%	23.3	7.6%
	13					38				3.7				1.0		8.5
411	Blue	1		427	5	1.1%			11	2.5%	5.95	1.4%	5.95	1.3%	21.95	5.1%
328	Med slice	ledges 2		352	14	3.9%	_		10	2.8%	3.95	1.2%	3.95	1.1%	27.95	7.9%
308	5	1 3		340	16	4.7%		_	16	4.7%	2.70	0.8%	2.70	0.7%	34.7	10.2%
	-			100 MT 0		3,2	_	-	-	5.3				1.0	0.77.0.17	151.7
336	Small D. P. I	Black 1		356	4	1.1%			20	5.6%	3.25	0.9%	3.25	0.9%	21.25	1.6%
206 /	very here,	plan E		724	7	E.6 %			12	7.10	2 14	10%	2 66	D. 4 10	26.45	659
396	0			547	0	1.8			10	4.7		1.0.10	0.00	0.7	61.00	72
			~							. /						
						-										12.20
295	Harr	ington 1		306	1	0.3%			10	3.2%	11.30	3.8%	11.30	3.69	22.3	7.2%
320	Unite Ma	d- 2		336	4	1.1%	_		12	3.5%	9.90	3.0%	9.90	2.9%	25.9	7.0%
314		3	_	332	5	1.5 %	_		13	3.9%	11.10	3.5%	11.10	3.3%	29.1	8.7%
		_			_	1.0	_	_		5,5		-		ک ک		4.8
			_		-	-	-	-				-	-	-	-	
-						-								-		
							_									
												_				
				_												
													-			
				-			_	-	-							
-	-			-	-							-				
-()-									-	_				_	-	
1								_		_					-	
					-					-		-		-		_
													1			
				1												ألاعت المراجع

				_							To	bacc	0 1	farri	shi	1966
	2º						-								1	Data
	Sai	A		÷					_			-	_			a luis
6-	0		TIOL	EL	1	Day	4	r.L	ala A	. 1	let.	L	n.	Tita	0.0.	( W.S.
-			10 per heaved	4.00	¥ 2055	- Par	val 64 VVOV	Lla	RR Fass	Kami	BIN	Droes	Wan,	10140	· LOSS	
Prini 7	R. 25	Vac One		No.,	90	No.	9,	No.	2	No	70	No	70	No.	18.	1000
(A. A	unit, 14	V WV OLAND	life	11	9.48	1.	.86	18	15.51	3.60	1,19	210	7.81	77 [	28.96	
(und s)	ReddRlue	2 2326 1/2"	128	8	6.25	0	0	26	20.31	3.40	3.61	3.40	2,65	37.40	29.21	
	3	, , , , ,	142	9	6.33	0	0	23	16.19	4.0	3.63	40	2.81	36.0	1 25,35	
	. r		129	8	6.20	1	,77	19.	14.72	7.6	7,52	7.6	5,89	35.6	27.59	100 C 100
	bren < 2	2326, 11	81	4	4.93	0	0	16	19,75	1.7	2.78	1.7	2,09	21.7	26,79	
	(3		70	4	5.71	0	0	15	21.42	2.9	5.68	2,9	4.14	21,9	31.28	
				1				Ξ.		-						
	01		105	7	6.66	1	195	23	21.9	2,7	3.64	2.7	2.57	33.7	32,09	
	Kedd Bran )2	2326, 1"	145	2	5.51	0	0	26	1 1.93	414	3.96	4.4	5.03	38.40	2/4/4.8	
	(3		150	6	1153	0	0	31	20.66	4.5	5.84	415	5.00	31.50	23,00	
				-	4420		-		20.16			2	207		-486	
	6		0.2	1	100	0	6	17	12	57	7.21	5.7	6.81	18.7	20 22	
	Red & yally 32	2326 24	76	0	8.00	0	D	18	18.04	2.1	2.83	2.1	2.10	7.8.1	28.10	
	1 1 20 3	0	82	S	6.09	0	D	117	. 47. 17	2.9	4,60	2.9	3 63	21.9	26.70	
					5.06			17	Speciel .				3000			
		A							1.00							
	1		110	6	5.45	3	2,72	38	34,54	1.3	2.06	1.3	1,18	48,30	1, 43,90	des a di serie
	Black 2	2326 2"	109	6	550	0	0	36	33.02	.6	189	.6 -	155	42.6	0,39,18	
	< 3		85	6	7.65	6	0	29	34.11	2.1	4.20	2.10	2.47	37.10	, 43.64	
				-	6.00		-	-	-							
	G		(7 m	1.	1. 24			10	10 11	10	2 00	1-0	100	01	2501	
-	121. 52	2221 ×	57	7	5	0	0	18	19,56	110	2001	2.2	1170	20,00	24.20	
	Ising 10	2520 2	8/	6	6.31	0	0	18	18.92	2.6	2.80	2.7	2.84	24,20	2810	
	61		18		4.70			10	111/7	211	3750	211		2011.	/	
							1				196					
	· ()	1.1	105	9	8.57	2	1.90	15	14.28	410	5.18	4.10	3,90	30.10	28.66	
	Greatyollow 2	2326 2	101	8	7.92	0	D	20	19.80	3.2	.43.83	3.2	3.16	31.20	30.89	
	(3		117	12	10.25	-I	,85	19	16,23	4.5	5,35	4.5	3.84	36.50	43,45	
		A							1.1							
			0										1			
	JI		94	10	10.63	1	1.06	25	26.59	4.7	8,10	4.7	5.00	40.7	0, 43,29	
	yollow )2	2326 \$	90	7	7.77	1	1111	19	21.11	4.0	6.34	4.0	4.44	\$1.00	, 34.44	
-	. (3		108	6	1,83	1	192	12	11.11	6.7	1.2	6.7	6.20	21,70	20.09	
			-		-						-				-	
	(1		53	6	11.32	0	0	2	3.77	1.9	4 22	1.9	3.58	9.9	18.67	
	RI 22	2326 2	66	1	1.51	0	0	7	10.60	3,3	510	3.3	5.00	11.3	17.12	
	3		63	3	5.26	0	8	2	5.71	1.5	263	1.5	2.38	1.5	13.15	~
1					6.04				6.54			31	10.96		16.31	
												¥	3,65			
															_	
					_				_		_		_		-	
													_			

1.00				_							_					
			14	1										1		
		R oron Co	12													-
		oro	-			-		1		1	et			-		
(	-		T.t la	Ha	Luis	64	4	Stall	+1.00	D	~1	2	D	Tistel	1.00	
2	II J P	11 0	131 Marten	ecay,	~013	- you	rarby	SALEN	1.40.33	ian	-agh	187885	Harr.	TOTAL	m05 5 .	
Presiming	Unit top	Var Clairing	4			E	exer .								-	
												1				
Any 15	F	_				199								100		1
	/ /		215	9	4.18	3	1.39	27	12.55	8.4	4.88	8.6	4:00	47.60	22,13	
	Rody Blue	2324 200	180	3	1.66	0	D	16	8.18	7.6	4.72	7,6	4.27	26.6	14.77	Г <u>-</u> г., с. с. н.
	7	100	191	7	3.57	0	D	24	17.24	9.6	5.81	96	1. 04	1161	20 71	
× *			11/	1	01-1	-	0	~7	12147	11.0	-101	11.0	4101	7010	10.00	
				1.1				-				-			19.04	
			121	1		Z	1.12	59		1.5		hill		743	4245	
1, J.L.	Burn 3	1.17 . 18	143 -	8		100		24		412		4.2		44.3		
	3		1.154	3				47		6-3	b.17	4.3			<b>王</b> 石(18)	
										1.1				1		
														111		
	-		202	10	297	2	49	25	12.37	12.9	763	12.9	6.38	45.9	, 22,72	-
2.151	Paddle -	0326 6.0.	1 11.1	3	1.81	~	5	15	921	1. 2	11.00	63	3.91	7/1 3	15.0	
thy - /	rear pren 2	2310 2000	111	4	2.2	0	0	10	10	10	4.40	10	11	200	10,09	
1 6	5		141	7	2.48	0	0	19	FI18	617	a, 00	Get	4.28	29.9	18,57	
		· · · · ·													18,79	
100	1		144	18			1.11	61.0		50		5.0		94.0	57.31	
-	dictory and	2320 R 1	- 147	to	A.18			14		1.6		1.6		the second	2. bash	
1	- 2		117	12				57				4.5		This '	43.78	
					-			-					-		-	
			2111	0	221	2	21	1. 7	17.47	11.5	- 1	115	1.77	125	26 31	
1.15	01. b 2	- 1 - ( + v)	241	8	2.21	d.	1.0	42	1140	- 10	4.09	11.0	4.11	622	22 4	
pang 10	plack a	2376 20km	184	9	5.26	0	0	45	24145	10.3	1.14	10.3	\$127	41.3	05.3/	
	3	a second	173	6	3,46	0	0	38	21.96	5.6	4.34	516	3.23	49.6	28.67	
					_		1.1								29.44	
												- F				
	Rlu 2	2326 to ble										E.				
	2	2011 2011			_											
	د											-				
				-	-											
_	_	1	15	2	1		1.2.5		0		_					
	1	5. le	165	L	1.35	2	1.35	13	8,78	8.2	5.54	8.2	4.96	25.70	1 15.0	0
(sugs)	greentypllow Z	2326														
A	3			-									1.1		-	
	~															
										1						
	· · · · · · · · · · · · · · · · · · ·		190	3	157	2	1.05	72	37,84	3.0	2.65	3.0	1.58	80	421	
A	70/100 7	2221 4120	1 1 9	2	252	0	ħ	23	19.32	2.1	2.25	21	1.71	28.1	23 11	
- Hujis	pine 2	esso a ve	147	9	1.9.	0	0	57	20.01	1.11	5.20	~1	210	1011	775	
	2		100	1	4.11	0	0	02	28.76	0.4	\$128	6.4	5189	6014	56,52	
				-			-		-		-				40.14	
	- 11 I F									_		~ I				
	1 1		153	71	4.57	2	1.30	60	39.21	8.1	9.64	8,1	5,29	77,1	50,39	
An IS	Red 2	2376 2 Char	121	2	1.65	0	0	15	12,39	2.1	2.01	2,1	1.73	19.1	15.80	
pruyts	3		139	5	3,59	1	,71	28	20.14	4.7	4,47	47	3,38	38,7	27,54	
			127					- 0	20119	4.1	11.7.4	Acr			31,30	
5.000															no p	
											-		-			
					-											
											1 1					

			-													
	D	and C	species	1												
	100	00.						100		-						
					_			÷	_	N	et					in the second second
_(			Tothours	Ela	i. Loss	5pm	utor	Stalf	2 Loss	Der	ove	Bross	Dan	Tite	4053.	
proming	unit Rays	Var clu	reig.		_	Dr	51	-		-						
			0			-	-	_							-	
July 12				-				-	-		-					
		-		-	-	-	-	-				-		-	-	
			200	18	50	2	1.0	75	27.5	7.0	6.19	1.0	3.5	90	47.00	
	20. 2	2336 24	21 159	9	5.66	D	D	20	18.86	11.63	3,83	4.6	2,89	13.6	27.42	
	3		171	5	2.92	1	158	58	33.91	5.1	4.67	5.0	2.92	1.9.0	40.35	
				Ĭ	10	(	10 0	00	- 5111					eny	1.9.5	
	- V					1.1										
	1	1.11	169	8	1.77	1	659	93	55.02	3.2	4.46	3.2	1.59	100,2	, 59,2	8
	yollow 2	2326 7/	130	4	4.61	0	D	51	39,23	25	3,42	2,5	1.92	59.5	45.7	6
	3		149	10	6.71	D	D	71	47,65	3,3	4.85	3.3	2,21	84.3	56,5	7
_			_					-	-	-	_					
-			100	c	1 07			-		1	1210	1 2	310	71 -	4.5.4	
	n	2221 7	181	1	4.91	2	1.1	29	32,59	6.3	2.67	65	2.40	14,3	421/5	
	them 2	2326 18	143	N N	5.59	0	0	1.9	19:58	4.2	5.72	4.2	2,75	40.7	27.8	-
-			104	-	TIL	0	0	41	31.01	6.3	V.II	63	4:07	203	, 3/200	2
									1							
			144	3	2 14	2	2.08	34	16.66	6.2	5.43	6.2	4.3	26 2	25.13	
	R Styplas 2	2726 E'	154	2	1.94	0	0	27	17.53	143	3,41	4.3	2.79	343	22,27	
(	AM 3	1 110 18	137	6	4,37	2	1.45	30	21.89	410	LADK	410	2,91	42.0	30.65	
			1.0.1													
1									_							
			144	13	7.92	23	14.02	53	32.31	5.0	6.66	5.0	3.04	94	57,31	
	Roltzaller 2	2326 7	" 147	6	4108	0	0	28	19.04	4.6	4.07	416	3,12	3816	26.25	
-	PM 3		177	12	6.77	1	106	54	\$3.33	5.5	5.23	5,5	3,10	77,5	43.7	8
-			-	-		-			_				_		-	
-				-		-		-	-		-	-	-			
				-					-							
			-													
	_															
												_				
								1					-			
		-								-	_		_	_	-	
		_				-							-		_	
			_				-			-	-		-	-	_	
-( -					-											
				8				-	-			-				
													-			

			6			(				1			2				
	Pinks	01	-					1									
	1.	_			_			-				-				-	
	-										1.0	No	ef.	0	-		1
A					Tot leave	Eley	. Loss	ope	rates	Sta	ilk loss	Da	marco	Eva	15 Dans	lota	al lass
Primie	wit	Rep	Var C	leava				2	Nax				0	1.1			
3		l.												1.			
1.00		1			118	b	2.29	15	0	21	17.79	1160	4 94	414	3.89	2911	25.18
(Tro a)	Q. Inv	-	2.7 × 1	20	120	G	7 74	0	~	10	15	4.60	4.14	20	7	21000	20100
(~ uny 26)	Redustine	2	6324	2	120	1	1,50	0	0	68	13-0	5.90	. 4.19	5.7	5.25	30.9	23. 15
		3			109	6	\$ 150	0	0	18	16-51	5,20	6.11	5,2	4.17	29.20	26.78
														_			
			1.0										81				
		1			71	L.	510			9	1267	1.7	293	1.7	2 24	11.7	2071
	a		23.4	4 11	1.1	4	4.65	0	0	1	1515	17	25	17	2 50	16 7-	20,10
	Breen	L	2326	7	06	8	13.12	0	0	10	14.15		Saly	1.1	2.21	14.10	15.154
		3	1000		13	4	4.81	0	0	8	7,63	3.5	4.92	3.5	4.21	12.90	18.67
												1.1					
		1	1.24 - 5		127	19	14.96	2	1.57	23	18.11	5.1	6.14	5.1	4.01	49.1	38,66
	Redither	2	2326	1	118	6	5.08	0	D	19	12,71	2,2	2,21.	2.2	1.84	23.20	19.66
	p werk	2		V	111	5	5.15	()	0	12	12.37	2	2.00	2	2.12	20	2011
		2			1.4	0		~		12	10001	3.0	51.07	0.0	-103	P4181	10.01
						-	-					-					
			-									in the second	1.1.1	1.1	-		
		1			125	10	8.0	0	0	30	24.0	6.2	7.29	6.2	4.96	46.2	36,96
1	Red Vyellow	2	2326	1/2"	52	5	9.61	1	1.92	9	17.30	2.2	5.94	2.2	4.23	17.2	33.07
		3			59	5	8.47	0	0	14	23.72	1.6	4	1.6	2,71	20,6	34.91
										6					- 1 P - 1		
(														-			
N. C. I							1		01		220	25	E.I	25	2 - 1		1.11 1.0
_		1		611	109	1	4,42	1	191	31	33.14	5.0	5.46	5.0	3.2/	483,	44449
	Black	2	2376	2	130	7	5138	1	,76	45	34-61	2.8	3.63	2. 9	2.15	53.8	42,92
		3			110	6	5.45	6	0	36	32.72	4.5	6.61	4.5	4.09	46,5	42.2
					1000												
					¢1	7	7 2 2	0	-	19	27.04	24	1.0	29	311 52	21.0	7590
	ml.	-	2.244	LV	04	-	7.00		110	10	22.09	3.7	2.04	17	2 400	24.1	21 30
	Rive	2	2326	2	34	6	1.14	1	1.19	18	21142	111	2,88	1.1	2.02	2617	84,18
		3			15	8	10.66	6	6	11	14.66	2.6	4.64	26	3,4,6	21.6,	288
			100.0														
						1.0	- E										
		E			149	7	4.69	4	2,68	20	13,42	4.7	3,9\$	4.7	3,15	35.7	, 23.95
	A Jul	2	223/	1"	11/1	7	6.11	0	-	17	IL G.	11	1.77	1.6	1.4	25.64	22 1
	Marcen 7 pelle	N L	2-5 210	Y	10.0	1	GIL	-	0	11	Fill	116	1.7	10	1 22	211-	2/2
		2	-	-	120	N	7.16	0	0	19	13,83	1.6	hll	1.6	1,32	21.10	26,3
			-				-			-			-			-	
												1.2.4					
		1			45	1	2.22	0	0	16	35,55	2.4	8,57	2,4	5,33	19.4	69.28
	Villar	2	2326	+1	57	6	p	1	1,75	14	24,56	2,5	595	2.4	4.38	17.5	30.7
	1	2			71	1	liv	1	14	10	2525	4.7	8.22	4.2	5.91	24.20	34 00
-		2		-	11	1	114	1	1.7	10	23,35	4.6	0,00	710	0.11	24,28	34.08
-				-		-										-	
				-	-				_								
		1			76	1	1.31	D	0	17	25.0	4.8	8,57	4.8	6.31	248	32,6
	Rea	2	2326	14	93	1	1.07	1	1.07	16	17,20	2.8	3.73	2.8	3.01	20.80	22,36
		3		1.0	\$7	7	8.04	0	0	16	18.39	3.8	5.93	3.8	4.36	26.80	36,80
		-			01	1		0			the second	4.4	ALLS.	-			
							1.1										
_				-		-			-						-		
14 May 1																	
																	-

Tobocco Howsking - 1466 Data

	Q.le9	ant?						1							U.	
	Pierr															
1			A Second						d	N.	et .	-			- 32	
			Total leave	Eler	Lors	Open	ratvi	Stor	UK loss	Dame		ma	5 Dian	Toto	Like	1.11
Put 1	1 44 R	14 . 10				3	TAT			Bi					and the	
1 mgl	- i i inp	Mar Urarina		-		-			-							
Hug 8				-												
														-		
	( r		193	3	1.55	1	,51	32	1628	13,70	8.72	13.70	7.09	49.76	25,75	
	Raddan S7	h 21 1"	150	7	1.21	0	7	2.	10 72	14.50	8 75	10.00	1. 9.	11750	28.14	
1 1 1 1	reaverange	136 2	15 -	0	E an	i		11	19.15	10,00	1.70	10140	207	5134	23.11	
-	. (3		160	8	3.72	1	. 14	16	11.85	6.20	4157	4.20	5.61	21.00	251	7
_					2,93				16 05			2	EQE		2016	
				1.0									5. 10			
	1.		155	12	\$ 20	i.	750	25	27.00	1010	9.0	10.10	1.51	6210	606.06	
	RI	Lee C	125	6	000	4	200	33	12150	10.10	7/0	10.10	4191	\$ 211 V		
	Ked je	1236 Tr	144	1	6.25	1	169	20.	13,88	8.7	1.63	8,70	6.64	38,70	26,81	
	. 13		130	10	7.69	3	2.30	14	10.76	6.2	6.01	6.2	4.76	33,20	25,53	
					7,42				15.73			3)	17,31		30.87	· · ·
													577	1.1		
	G		121	2	150		~	14	15 00	# 1	1 47	96	7 20	2014	2103	
-	plan la	0.2.1.1.	151	4	1100	1		1/-	10.11	110	8,51	110	1.00	20.00	2010	
	Red & Marten SZ	6319 5	130	3	2.30	1	,76	15	11.23	2.9	5.31	5,7	4.53	24.9,	19.15	
	3		171	9	5.26	1	,58	20	11.69	8.4	5.95	8.4	4.91	38.4	2245	
			1. Sec. 1.		3.03				12.06			3	1676		21.14	
													5.59			
	G		120	11	2 61	1		711	17 0	91	75	0,	CG1	371	77.00	
_	- 1'	1 I	138	4	2.71	1	110	44	17.4	8.1	1.0	Kel	5.11	SIII	21100	the second second
	Red JL	C319 5	141	1	4.96	0	0	21	19,14	1.2	6.12	7.2	Silo	41.2,	29.21	
	. (3	a	174	12	6.89	D	D	27	15.51	10.60	7,85	10.60	6.09	49.60,	28.50	
	N		1.16.41		4,92				17.39			3)	17.10		28,26	and the second
			1000			1							5.70			
	. (.)		259	G	57	1	50	1.0	100	11	9.55	11 .	6.05	74 70	201.	
		11	201	7	3,41	1	130	40	18.25	16.20	0,00	16,20	0,118	14,20	Cardy	
	Ked ( been ) 2	HC. 2512 -	222	4	1.80	9	0	49	22.07	914	5.56	7.4	4.00	62.40	,28,16	
	. (3		215	6	2.79	1	146	36	16,74	10.40	6.04	10.40	4.183	53. KO,	24.03	
					2.69				19,10			3	1531		26.92	
													510			
	0			-	1.00	b.			0. 24	21 -	-	et =	- ipu			
-			160	4	1.10	4	2,20	37	24121	8.30	1.21	8,5	242	5 3,30	53.51	
	Rd 12	NC. 2512 2	136	3	2.20	1.0	,73	25	18.39	4.1	3,83	4.1	3.01	53.16	24.33	
	3		146	5	3,42	0	0	23	15.75	1.2	5.25	6.2	4.24	34.2	23.42	4.1
		and the sale is			2.29				19.50			(c	12 1.2		27.0	2
									11.0			37	d il			
-									-		-		r.14			
							-				-		-			
											1.1					
			1		1.16											A CONTRACTOR OF A CONTRACT
	6. M		100													1.1
-	-				-				-						-	
					_			÷.,	-		_		-			
		12.00	1.1													101 B 1 C 1 C 1
	(	all second second														
					-				-							
1	-										-					
									1.1							100 C
			100000													
			100 Tani 1				(*****		-							
			1000													
											-					
					-										-	

		all and a second	1 Pm
Q1.	Dan	Cor	2

	10	-														_	
/						1.1								1.1		1.5	
1								1.1.1			V	let !!	7	1.0			
					81	1.1	~ 1	. tr	54	obl at	D.a		Brace	. A	TITA	Les	
		5	11 - 0	10" transe	Eler.	LOSS	or	~ M 02	Prov	641653	Da	wage	10 19013	sam	10.10	-120	
Princing 3	Unit 1	ap	Van alara	*	-	-	tr	NEY				-		_		_	
1				1. A				_				-				- 6	
augal.															No	25	
( neg s ly		1		117	4	3.4	12	D	2	1.7	3.7	7,34	3.7	3.17	9.7	8.3	
44		0.	1021 L"	127	T	1.	6.	0	T	73	2.6	1.91	24	1.9	3.6	2.63	
Here	1706421190		67-340 8 0X4	131	0	2 70	0	0	1	0	15	445	4.5	4.5	10.5	73	
	1.1.1	3		144	4	2118	U	U	0		63	7.00		110		1.07	
					1.0	2.06		-		0100		_		5/1.51		0101	
	a	1.1		1.1.1.1.1.1.1.1	1.0					1.1.1				3,19			
	1.1	L		100	4	4.0	6	0	3	3.0	3.7	3.98	3.7	3.7	16.7	14.7	
X	del.	2	bar 3/4	115	1	87	0	0	2	174	3.1	2.77	3.1	2.7	61	5.31	
40.	Actes	2	036 4	1111	F	255		-		11.7	1.5	1 70	1.5	46	11.5	8.15	-
		2	OULATING	141	3	200	0	0	0	159	0.0	4.10	-	VII D	.u.	8.05	-
		-			-	2.81		-		1.57			3	2 -1		0140	
					301	-						2.11	51		21	2 900	and the second
		1		121	1	.83	0	0	0	0	2.6	2.16	4.6	2.15	36	2,18	
	Weend Ren	2	C319 18'00	101	4	3.96	0	0	0	0	1.55	1.60	1.55	1.48	5.03	5.5	
		3		216	6	2.78	0	0	5	2.32	6.9	3.37	6.9	3.2	17.9	83	
		-				2.52				.77			3	7.83		5,59	
				1.00	1			-						2.63	1.1		
		-		100	2	187	0	11	0	~	11.11	37	4.0	3.67	60	55	
	0.4	- /		109	F	1.00	U	0	1	111	21	215	2,	36	1.1	1.77	des de la set
	Wids	2	(319 14	86	0	0	0	0	-	1.16	3-1	5.60	31	- 12	4.1	4.11	
-r-		3	ownlap	129	4	Sal .	0	0	1	18	3.4	2.74	3.4	12.64	81¥	612	
	1.1		(	a desta	1.1	1.64				,65			3	11 .71		2121	
				1 . L. L					1.1					3.30			
		ŧ		102	6	5.56	0	0	1	,93	3,5	3.46	3.5	3.24	14.5	19:7	
	man de.	12	2512 1/1	117	2	1.7	0	0	1	. 857	1.9	1.67	1.9	1.63	4.9	4.19	
	RT. 5800-1.540	2	Del	Ind	5	412	U	0	E	4.63	4.4	UC	44	4.07	144	133	
	-	~	unarlag	100	1	7.63			2	2.10		40	117	210 94	-1.7	9.08	
						3.16		-	-	-114				296			
						~		-				Salare		2118			
	1 m	1		119	6	5.05	0	0	(	,84	3.1	Z.76	3.1	2,6	10.1	8.2	
	Wide	2	2512 1/1	113	4	3.54	0	õ	1	.88	1.7	1.58	1.7	1.5	6.7	5.93	
		3	made	1611	7	3.0	0	0	1	1.00	2,3	24	23	213	63	6.3	helpille and "
			Clamp	100		3. 56				0.91		1		316.4		6.91	and the second second
														2.1			11 C 14 P 1 1
							1										1.
				1.1							10		1	1.00	1.14	120	
7	1	1		112	0	0	0	0	0	0	14.0	1.75	4.4	1.65	114	9.0	
Primits	Red & Dream	2	2326 3	137	1	. 73	0	0	5	3.65	45	4.15	6.5	4.75	12.5	1.15	
	1.1	3	amples	138	1	,73	0	0	3	2.18	1.7	1.27	17	1.23	5,7	4.13	
- P.	1.0					0,44			101	1.94	1.0			3)7.23		4.84	f
	1.1			1.1.1.1.1					1.1		1			2,41			1.0
		1		73	0	0	1	1.27	3	4.1	11.6	2,32	1.6	2.19	5.6	7.65	
	in-1	2	2221 3/6	62	0		5	215	1	100	31	40	36	2 57	6.6	71	1.00
	Wide		23144	15	2	0	n	2.10	2	1100	2	C.C.	21	5 55	6.0	it	
		3	overlag	40	2	5	0	0	L	2.0	00.0	2123		211 21	10.0	9 9	D
				-	-	1.67	-			3,4	9		-	1.06	•	1, 1	-
				100.00			1.1		-					5.69	-		
				1.1.1.1.1.1.1.			1.00				-			<u>S</u>			
				1.1.1.1.1.1.1	1.						1						
	dire.			1.11	-		1.14										
	1.00																1. Sec. 1. Sec. 1.
			L								1				1		a series and

and the second second								_		_									
				-															
	0	1	iona	2		-								-					
	The	m				-													
6	-							-		-		NI	it				0.1		
	1.1				Tot leave	Ela	Lass	ope	ator	sta	Re 1043	Dan	carg	tross	Dam.	カす	il hoss		
Priming	Unit	Rep	Val	Claim	4			Er	wer				8						
2		/										1							
0						1.1						-		-		-			
174917						1													
						1				-		1.0							
		1			115	8	6.95	0	0	र	260	5.4	5.19	5.4	4.69	16.4	14.20		
Hart	R(. 4P.	17	136	K"	124	2	2.23	0	X	2	2 2 2 2	2.11	3.113	4.4	2.28	Int	7 71		
have .	Brees + M	2	10.30	8 ow	1. 7	2	200		ic	2	6163	4.4	5040	7	1 00	1010	11/2		
		3	-	TP.	145	4	2.79	1	169	6	4.19	7.0	5.3	1.0	4,87	18.0	6,1258		
	1.0		1.0			1.1	3.99				3.01	1.1		3)	12.86		11.3-	1	
					1		· · ·							~	4.29				
		1			262	0	D	D	~	1	99	5 2	C 2	5.3	CTL	1 1	1.2		
.W	100.11	2	1 .	2,11	101	9	1.2	0	0	ł	/	313	0.5		0104	6.5	, 4,25		
- y.,	VVid.	b.	1736	The over	91	1	1.05	0	D	0	0	415	4.68	410	4.63	55	5.67		
	1.1	3		lap	94	4	4.16	0	0	2	2.08	4.9	5,44	4.9	5.10	16.9	11,35		
	1. A			4			1.73				1.02	-		3	11497		1.18		
	1.1														4.99	1.0			
		1			155	1	lel.		0	0	6	87	500	87	5 26	92	692		
	DI JO	1	1 2	LHA	12-7	2	194	0	0	2	115	DIF	101	DI P 1 I	4.47	112	3.23		
	Blue 9141	12	0319	to cha	07151	6	1.40	0	0	E.	. 140	6.6	4.96	66	4.81	10.6	1.15		
	Long La	3			182	10	5.49	0	0	4	2.19	7.1	4.22	7.1	3.90	21.1	11 57		
							2.53				1,21			3	14.00	1.1	8,42		
			12.1		1.00										4.67			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
1	1.1		11		G I	2	210	1	719	0	0	÷ .	1.14	5 A	540	11 1	1525		
	11.1	1	1	2/	71	6	K.17	-	- 1.01	0	1 -1-	0.0	0.07	10	0.57	14.0	0.00		
1	Widy	2	5319	The own	114	0	0	3	2.63	2	1.75	4.8	414	4.8	4121	4.80	8.17		
	4	3		lap	148	3	2.02	6	ð	L	2,70	7.5	5.31	7.5	5.06	1415	9.79		
	×			1		1.1	1.40				1.48			3	1476		11.25		
	6														3.97	1.			
	1	1			195	G	Leilet	1	51	1.	7.7	17	3 74	1.7	3.12	227	11.14		
	21 .1	1	200	1.11	113	1	sprog		101	6	3.01	111	7,14		7.0	201	0-0		
	Blue NA	02	2512	18	132	0	0	1	113	6	4.04	4.6	3168	416	2,48	11.6	8.78		
		3		Overlap	165	4	2,42	0	0	8	4.84	62	4.05	6,2	3.25	17.2	10.42		
				· · · · ·			2.34				4.15			3	10.66		10.29		
							1.5.1		1.0		1.1				3.55			And the second se	
					and -		2 04		01		10.	3-7		2-1	3 52	1. 1	14.19		
	12. 14		3.0	2. 11	105	4	5.88	1	175	2	1.70	5.1	3.11	217	1.00	10.1	19,11		
	Wide	2	1212	14	88	3	3.4	0	0	0	Q	2,8	3,29	2,8	3.18	5.8	6.59		
1.1		3		Sverlage	91	2	2.19	0	0	0	0	4.4	4,94	4.4	4.83	6.4	7.03		
							3.13		1000		0.63			3)	11.53		79:37	-7,94	
					1.00									1	4.04				
-					911	i.	11.12		-	de.	1	99	7 81	22	211	11 2	17.		
	by lol	1		64 1	14	10	10.63	0	0	4	4.25	2.5	2.01	210	4.44	10.5	1.39		
	Bluedled	V	2326	14 only	, 111	9	8.10	0	0	6	5.4	3.1	3.22	5,1	2.79	181	16.3		
		3			77	4	5.19	0	0	5	6149	1.8	2,64	1.8	2,33	10.8	14.07	Y - I - I - I - I - I - I - I - I - I -	
							7.97				5.38			3)	756		15,8	9	
						1.1	. /							- A	252				
					1.2/		278	$\overline{O}$		1	2 20	75	157	70	170	275	- 45	,	
		1		7. 11	40	1	200	-	0	-	2130	, 10	1.0/	.12	1.10	2.15	09		
	Wide	2	2326	14	56	L	3,51	3	5.32	5	8.72	1.5	3.26	1.0	2,67	11.5	2012	3	
		2		overlap	75	5	4.66	0	0	2	2,66	3.3	4.85	3.3 .	4,40	10.3	13.73	and the second second	
1.000				1	1.00		4.20				4.65		1.	3	8.85		13.1	0	
(															790			- 1 m	
1									A11						- 1-				
		-		-			-						-		-				
				-			-						-						
_							-		_				_		-				
					ter the state of						22.5.5		12.1						
				-					1.1						-				

	Effecti	ueness of	Hand als	Retty 1	PD foliat	hsigNu	mbers in	Parenthe	ses are
	Damage	Values.	other 1	Vinters	are To	tal Har	usting L	035co	and Include
	Par Part	amage of	Stalk Le	oss and E	later he	5.	nd		1966
6			frim	m		Wean v	certus		
	Defoliater	Variety	4	B	C				
1.70		1	0017	5	1				
	Hard	6 97 26	(5,95)	(4,29)	(3,19)	100 C			
	soft	10-54	30.8Z	7.74	8,05	Unta			
	24		(5.77)	(4-99)	(3.70)				
	Hard	>	21.14	811.70	5.59				
		6319	(5,59)	(4,67)	(2,63)				
	suff		28.26	11.25	5.59	wite			
			(2,16)	( ( 17 C)	(2100)				
				5					
	Hard	1180	24.92	10.28	9.08	1.7 . 3			
	14 3	N.C2512	(5:10)	(31)5)	(2,98)		_		
	50.57	1.1	(4+14)	(4,84) -	(2110)	the state		1.2	
			5					1. J. F	And the second second
			0-1.1						
	Hond	WEA 23 21.	(2.87)	15.89	4.84				
	Suff	NO. CONTRACTOR	16.31	13.60	9.93	lando			
	1 1		(3,65)	(2,95)	(3.16.9)				All States and the
					_	_			
			10.00						1
				_			_		
				6		1		-	
									5
						_			
						1			
						Sec. 199			
						-	-		
		-							
	1								
			-			1.1			

	Total	Harry	ting 1	-855m	and :	stalk h	osses (	in Paran	theses)
	E 11				N 14	121.15			
	for the	dar	Soft	Sural	Ruffer	- aper	. Mean	Volues.	1466
			V	P.	-				
	Delit	Variat		A	ng B	C			
	Degotiator	Vancij			~			1	
	Hand			25.67	11.53	6.07			
		p36		(16.05)	(3.01)	(6.81)			and the second second
	5044			30.82	7.78	8.65			
				(15.73)	(1.02)	(1.58)			
	Hal			21.11/	0 11 2	659	_		
	1142.0	0819		(12.06)	(1.21)	(6,77)			
	Suff.			28,26	11.25	5.59			
				(17.39)	(1148)	(0.65)			
						a Normal State			
	1.7			01 0		0.0			
	Hard	41 2512-		20-92	16.28	9.08			
	Salt	NC PATE		27.02	1 94	(2.14)			
	*D 7 1			(19,50)	(012)	(0 91)			
	1.1.1			(1	61631	Cons			
	Hard			27.86	15.89	4.84			
100 C	0.1	NC 2326		(20.16)	(5.38)	(1-94)			
	foft			16.3/	13.60	9.93			
				(6.54)	(4.65)	(3.40)			
	4	- Block							
		- topic to	-						
	_	liped.	_						
	_								
	-	.  - ll	-						
		_							
			_						
							-		
		_							
			-						

VARIETY NC2326

	Dellant							1.201 1.1		
	Officialos								Dungell	
-	Friming	0. 111	C II > J	0 6 0	160	0 . 1	c .	5 (11)	C HC	
-(	Reps	Bintole	Just Total	Masslilla	Alt 1. Ban	To Elev	70 P	10 Stall	7.648	
	a									
	Reddyellow	4								
	A I	75	164	3.04	6.66	7.92	14.02	32.31	57.31	
1 10 1	7.	113	147	7/2	4.07	4.08	0	19.04	26.25	
1 200	2	105	127	310	(23	(22	56	33 33	43-28	
l	5	9711	11266	200	5 32	6.25	486	2827	4244	
-	0 1	11.00	162.00	3.00	0.00	A	7.00	20122	21.01	
_	. 0 /	85	125	7.16	1.11	8.00	0	2710	56,96	
_	2	31	52	4.23	5.94	7,61	1.72	17.30	37.07	
	3	40	59	2.71	4.00	8.47	0	23.72	34.91	
		54	72	3,96	5.74	8,69	.64	21.67	34.98	
	CI	79	92	6,19	7.21	1.08	0	13.04	20.32	
	2	74	100	2.10	2,83	8.00	D	18	28.10	
	2	63	82	3.53	4.60	6.09	0	12.07	26.20	
	2	72	91 22	3.94	4.88	505	0	16.07	25.04	
	D.		11,55	5.77	1	0,00		16.05	a	
_	0 /		-	~			-	-		and a second second
_	2									
-	3					-		_		
-			a fair and	and the second second		1				
			11 N. 1999							
			1. de - 1							
	Red+BI	ue								
0	(AI	176	215	4.00	4.88	4.18	139	12.55	22 17	
	7	161	180	4.22	4.22	1.66	0	98 0	14 22	
	1 2	115	196	4 89	5 PI	1 60	0	12 22	20. 31	
	) ~	160	1/0	11.30	5.01	2.01		12.21	20.11	
1) Cons	$\leq 0$	161	141	4.51	3,13	3,13	.76	11.00	19.20	
4 cur	1 4 (	93	118	3.89	4.94	230	0	12.79	25,08	
	1 2	93.	120	3.25	4.19	7.50	0	15-00	25.25	
	/ 3	85	109	4.27	6.11	5.50	٥	16.51	26,78	
		98.33	115.66	3.97	5.08	5.46	0	16.43	25.87	
	CI	96	116	3.10	4.18	9.48	.86	15.51	28.96	
1	2	94	128	2.65	3.61	6.25	0	20,31	29.21	
	2	110	142	2.81	3.63	6.32	0	16.19	25.35	
	63	. 96 × 6	178 66	2.85	280	730	20	1770	22.00	
1 11	7	00	94	2 44	2 0 7	1.00	. 20	11.05	17.07	
1 lu	1	91	74	200	2.01	10,63	0	7.25	11.34	
8 000	> 1	10	22	2.19	5.66	8,10	0	5.40	16.30	
1. A.	3	68	11	6.33	2,64	5.19	0	6,49	14,02	
		81.33	94.00	2.52	2.91	7.97	0	5.38	15.88	
	5 <b>4</b> 7.74									
	Redt	Yellow								
	AI	114	144	430	5.43	2.08	2.08	16.66	25/3	
	2	124	154	2.79	3.46	1.94	0	17.53	22.27	
	7	90	127	201	4.04	400	140	7/09	20.11	
( -	2	112 22	140	2 7 7 7	1121	7.51	1.13	1910	16.05	
		116.33	175	3. 35	7.31	d. 19	1.11	10:69	26.01	
-			_							

							641	89		0
			1	6.9	15-1-	22	0 5 7	56		0
25'95	57	24	-19	g ./	70 8 7	61	19/	26		
7654	27-	65 65	1 6	(1 /	hih 6	8-1	0.00			
8265		The second								
		1.8 12			529	1.2.X				
						215				
										()
	63.30									
	1 30 25									
	10.00		70.							
							12. 27%			
										O.

1	1	A	R	T	E	7	F	N	C	2	3	2	4	

			Y.	ANZE	1	the Or	UNE T			
		Bratt	S Al	4 5	0190	Es Flan	30.	S. Stath	SIL	
		an Tola	Juan	201055 1-	100 10	-1. Hex	~Op	1000000	11671	
			Tolos	Dam	Pan			1		
				0 w	1					
6										
			100					1		
and the second second									-	
	V. 1/2	4								
	1010	110	100	113	010	100	11.5	2000	112	
11	1 41	11/5	170	1.21	6.000	1.51	1.05	2409	76.10	
10	20 2	67	1.0	1 24	725	2 02	43	1972	2211	
17	rag c	15	107	1.19	6.69	4,24	0	11.30	65,61	
2	. 3	1210	183	3.49	5.28	4.91	0	28.96	56.52	
-		100	1111	2 20			20	-0.22	20000	
		109	164	2. 21	5.59	5,00	050	28.12	40,17	
	A 1	20	11. 5	6 33	0.11	-	1	75 55	10 -0	
	D E	48	43	0.33	8.31	2122	0	33,00	64. 48	
	2	11.2	53	16 20	FOF		105	311 21	30 20	
		40	31	4,30	3,73	0	1.10	24.26	50.70	
	3	51	21	5.91	8,23	1,40	1.40	23.75	246.18	
		40.20	-211	- 20	5 00	120	100	20.00	111 18	
		40-33	51.66	3.20	1.30	1.00	1.05	21.82	44.60	
	C /	62	94	5.00	810	11 63	1.06	21 55	U279	
	- 1	00	//	0000	0110	10,00	1100	20.01	1001	
	2	63	90	4.44	634	7 22	1 11	21.11	34.44	
	L	00		1	0.01	1. 11				
	3	93	108	6.20	7.20	1.85	152	11.11	10,09	
		7177	0777	671	721	175	102	10 - 1	32 1 0	
		11.33	11.55	3, 21	1. 21	6.19	1.05	19.60	Jx. 60	
	D 1					1.10				
	2									
			-					-		
	3		and the second second							
				_						
						_				
		1. State 1.								
										and the second sec
6		(1.11	0)							
	T I	15	clear							
	Blue	6	/							
	A 1	11 2	A - A - C	JE	1 10	- AB	1 00	20 -	AA Q XI	
	A I	113	200	3,0	6.17	3.00	1.00	31.3	41.00	
	2	120	159	7.29	3.83	217	D	1001	54 11 3	
	0	100	10 1	0101	- A	0.00	U	10:00	91,4.4	
	3	167	121	2.92	4.61	3.97	, 58	33.91	40.35	
		117 7 2	17111	3 15	1100	11 - 7		20 00	2020	
		112.33	176.66	5,10	7.57	7.50	.50	30,07	58125	
	RI	12	26	11. 53	1 10	2,32	0	22.19	20 05	
	U 1	6 -	00	4130	0.00		4	00101	40,00	
	3	59	84	2.07	2.88	7,14	1.19	31.42	31,28	
		31	DET	0 46	11 1 11	10 11	4		ma all	
	7	36	13	3.70	4.64	10,66	0	14.66	48.80	
		53.33	31.66	3.33	4.50	670	39	19.39	29.84	1
	4	22	0.1	100	2 10	11 - 11		10 -1	24 - 1	
	CI	10	76	1.95	6.51	4.34	0	17.56	25,86	
		60	87	202	7 2 2 2	2 1111	0	10 20	Del a 1	
	7	6 0	01	1.00	2-25	3.44	0	10.07	er. 3 6	
	9	71	95	284	3.80	631	0	18,94	28.10	
_	-	1011	0.20	2 /2	0.00	1.10	0	10.01	- /	
		69.66	41.33	2,43	3.20	4.69	Ø	18.94	26,10	
	DI									
	0.1									1
	0									
	3									
							_			
								_		
		and the second second		and the second second						
			-							
										and the second
		and the second second	and the second sec							

and 0 0 -100 -

					VAR	LZIY	NC	er 2 er	Ý		
		-									
	-	-		_				_			
_					1						
			1				1.1.1				
-	14	11						-			
1010	yel	100	2								
121	) A	+ 1	172	169	1.89	4.44	1.77	1.59	55.02	57.20	
800	and a	2	22	170	192	2.42	4.61	0	39.2.7	45.76	
0	1	-2	10	140	5 5.	460	171	A	117 11	11 87	
-		5	60	14 7	2.21	1.08	0,11		41.60	30121	
			11	149.33	2.00	4,14	4.36	019	47.30	53.84	
	ß	1								92 5	
		2	107		1 2 7 7	1100	1000	12	2.1.1	7 8	
		4	1 1 1			2	1 × 1				
		3	10 L	25 7	18.15	14 F. A.	24 7		Production of the second	aller in	
	1										
	C	1									
		-	_								
		2	-		-	la dela del					
		3								and the second	
					1.121						
	T	1									
	0	-			-						
		2									
		3									
								_			
		-									
		-									
					_	1					
			1	N A	1						
	~		13	t clea							and the second second
	110		10								
	Ore	e /		- 1	-	and the second sec			and the second second	and the second second	
	A	e /	111	181	3.48	5.67	4.97	1.10	32.59	42.15	
	A	e / 1	111	181	3.48	5.67	4.97	1.10	32.59	42.15	
	A	0 2 2	111 107	181 143	3.48	5.67	4.97 5.59	1.10	32.59	42.15 28.11	
	A	6 - 2 0	111 107 102	181 143 154	3.48 2.53 4.09	5.67 3.92 6.17	4.97 5.59 1.54	1.70	32.59 19.58 31.81	42.15 28.11 37.85	
	A N	6 - 2 3	111 107 102 106.66	181 143 154 15933	3.48 2.93 4.09 350	5.67 3.92 6.17 5.25	4.97 5.59 1.54 4.16	1.10 0 0 .36	32.59 19.58 31.81 22.99	42,15 28,11 37.85 36.03	
	A	e ~ 2 m -	111 107 102 106.66	181 143 154 15933	3.48 2.53 4.09 3.50 2.39	5.67 3.92 6.17 5.25 2.92	4.97 5.59 1.54 4.16 5.63	1.10 0 .36	32.59 19.58 31.81 22.99	42,15 28,11 37.85 36.03	
	A A A A A	e ~ 2 0 -	111 107 102 106.66 58	181 143 154 159.33 71	3.48 2.53 4.09 3.50 2.39	5.67 3.92 6.17 5.25 2.93	4.97 5.59 1.54 4.16 5.63	1.10 0 0 .36 0	32.59 19.58 31.81 22.99 12.67	42.15 28.11 37.85 36.03 20.70	
	A N D	e 123 - 2	111 107 102 106.66 58 48	181 143 154 159.33 71 66	3.48 2.53 4.09 3.50 2.39 2.57	5. 67 3. 9 2 6. 17 5. 25 2. 93 3. 5 4	4.97 5.59 1.54 4.16 5.63 12,72	1.10 0 0 .36 0 0	32.59 19.58 31.81 22.99 12.67 15.15	42,15 28,11 37.85 36.03 20,70 29,84	
	A D D	e ~ 2 m - 2 m	111 107 102 106.66 58 48 71	181 143 1573 15933 71 66 83	3.48 2.53 4.09 3.50 2.39 2.57 4.21	5. 67 3. 92 6.17 5.25 2.93 3.54 4.92	4.97 5.59 1.54 4.16 5.63 12,72 4.11	1.10 0 0 .36 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63	42,15 28,11 37.85 36.03 20,70 29,84 18,67	
	A D D	e ~ 2 m - 2 m	111 107 102 106.66 58 48 71 59	181 143 154 15933 71 66 83 7333	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05	5. 67 3. 92 6.17 5.25 2.93 3.54 4.92 3.74	4.97 5.59 1.54 4.16 5.63 12.12 4.11 2.52	1.10 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48	42.15 28.11 37.85 36.03 20.70 29.84 18.67 23.07	
	An	e ~ 2 3 ~ 2 3 /	111 107 102 106.66 58 48 71 59	181 143 154 15933 71 66 83 73.33	3.48 2.93 4.09 3.50 2.39 2.57 4.21 3.05	5.67 3.92 6.17 5.25 2.93 3.54 4.92 3.74 7.52	4.97 5.59 1.54 4.16 5.63 12.12 4.11 7.52	1.10 0 0 .36 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48	42.15 28.11 37.85 36.03 20.70 29.84 18.67 23.07 2.759	
	AD	e - 2 0 - 2 0 - 1	111 107 102 106.66 58 48 71 59 101	181 143 154 15933 71 66 83 73.33 129	3.48 2.53 4.09 3.50 2.39 2.57 4.21 3.05 5.89	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2	4.97 5.59 1.54 4.16 5.63 12.12 4.11 7.52 6.20	1.10 0 .36 0 0 0 .77	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 12.48 14.72	42.15 28,11 37.85 36.03 20,70 29,84 18.67 23.07 23.07 27.59	
	A A A C	e - 2 m - 2 m - 2	111 107 102 106.66 58 48 71 59 101 61	181 143 154 15933 71 66 83 73.33 129 81	3.48 2.53 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09	5. 67 3. 92 6. 17 5. 25 2. 93 3.54 4.92 3.74 7.52 2. 78	4.97 5.59 1.54 4.16 5.63 12.72 4.11 7.52 6.20 4.93	1.10 0 36 0 0 0 0 0 .77 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75	42,15 28,11 37,85 36,03 20,70 29,84 18,67 23,07 27,59 26,79	
	A A A A C	0 - 2 M - 2 M - 2 M	111 107 102 106.66 58 48 71 59 101 61 51	181 143 157 15733 71 66 83 73.33 129 81 70	3.48 2.93 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14	5. 67 3. 92 6.17 5.25 2.93 3.54 4.92 3.74 7.52 2.78 5.68	4.97 5.59 1.54 4.16 5.63 12,72 4.81 2.52 6.20 4.93 5.71	1.10 0 .36 0 0 0 0 .77 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42	42,15 28,11 37.85 36.03 20,70 29,84 18,67 23,07 27,59 26,79 31,28	
	A A A C	6 ~ 2 M ~ 2 M ~ 2 M	111 107 102 106.66 59 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 9322	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14	5. 67 3. 92 6. /7 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 22	4.97 5.59 1.54 4.16 5.63 12.12 4.11 2.52 6.20 4.93 5.71	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 18.63	42,15 28,11 37,85 36.03 20,70 29,84 18,67 23,07 27,59 26,79 31,28 29,55	
	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	e ~ 2 3 ~ 2 3 ~ 2 3 ,	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15733 71 66 83 73.33 129 81 70 93.33	3.48 2.93 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12.12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 36 0 0 0 0 .77 0 0 0 .25	32.59 19.58 31.81 22.99 12.67 15.15 7.63 12.48 14.72 19.75 21.42 18.63	42,15 28,11 37,85 36,03 20,70 29,84 18,67 23,07 27,59 26,79 31,28 28,55	
	A A A A C P	123 123 123 1	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7.5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.11 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 23, 07 27, 59 26, 79 31, 28 28, 55	
	A A A A A A A A A A A A A A A A A A A	e 223 223 123 12	111 107 102 106.66 5 \$ 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 7333 129 81 70 9333	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12.12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 7.63 12.48 14.72 19.75 21.42 18.63	42,15 28,11 37,85 36.03 20,70 29,84 18,67 23,07 27,59 26,79 31,28 28,55	
	A A A A A A C P	e 2 3 1 2 3 1 2 3 1 2 3	111 107 102 106.66 59 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 73 3. 5 4 4. 92 3. 74 7.5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.92 17.95 21.42 18.05	42,15 28,11 37,85 36,03 20,70 29,84 18,67 23,07 27,59 26,79 31,28 28,55	
	A A A A A A C D	123 123 123 123	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 7.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 7.5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 18.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 93, 07 27, 59 26, 79 31, 28 28, 55	
	A A A A A A A A A A A A A A A A A A A	e 23 223 123 123	111 107 102 106.66 5 \$ 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 7333 129 81 70 9333	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 7.63 12.48 14.72 19.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 23, 07 27, 59 26, 79 31, 28 28, 55	
	A A A C P	e 23 23 723 723	111 107 106.66 59 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 73 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12.12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 17.75 21.42 18.63	42,15 28,11 37,85 36,03 20,70 29,84 18,67 23,07 27,59 26,79 31,28 28,55	
	A A A A A A A A A A A A A A A A A A A	e 23 23 123 123	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 93, 07 27, 59 26, 79 31, 28 28, 55	
	A A A A A A A A A A A A A A A A A A A	e 23 223 223 223	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 7333 129 81 70 9333	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 7.63 12.48 14.72 19.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 23, 07 27, 59 26, 79 37, 28 28, 55	
	A A A C P	e 23 223 123 123	111 107 106.66 59 48 71 59 101 61 51 71	181 143 154 15233 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12.12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 23, 07 27, 59 26, 79 31, 28 28, 55	
		e 123 123 123 123	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6.17 5.25 2.93 3.54 4.92 7.52 2.78 5.68 5.32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 18.63	42.15 28,11 37.85 36.03 20,70 29,84 18.67 23,07 27.59 26,79 31.28 28.55	
	A A A A A A A A A A A A A A A A A A A	e 2 3 1 2 3 1 2 3 1 2 3	111 107 102 106.66 59 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,12 4.11 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 7.63 12.48 14.72 19.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 23, 07 27, 59 26, 79 37, 28 28, 55	
	A A A C D	e 23 223 123 123	111 107 106.66 59 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3.5 4 4. 92 3.74 7.5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12.12 4.11 2.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 18.63	42.15 28,11 37.85 36.03 20,70 29.84 18.67 93.07 27.59 26.79 31.28 28.55	
		e 223 223 223 223	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 18.63	42.15 28,11 37.85 36.03 20,70 29,84 18.67 23,07 27.59 26,79 31.28 28.55	
	D C D	e 223 223 123 123	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.11 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 17.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 23, 07 27, 59 26, 79 31, 28 28, 55	
	D D D	e ~ 2 3 ~ 2 3 ~ 2 3 ~ 2 3	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 12.63	42.15 28,11 37.85 36.03 20,70 29.84 18.67 93.07 27.59 26.79 31.28 28.55	
		e ~ 2 3 ~ 2 3 ~ 2 3 ~ 2 3	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6.17 5.25 2.93 3.54 4.92 7.52 2.78 5.68 5.32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 18.75 21.42 18.63	42.15 28,11 37.85 36.03 20,70 29,84 18.67 23,07 27.59 26,79 31.28 28.55	
		e ~ 2 3 ~ 2 3 ~ 2 3 ~ 2 3	111 107 102 106.66 59 48 71 59 101 61 51 71	181 143 154 15733 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.11 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 17.75 21.42 18.63	42, 15 28, 11 37, 85 36, 03 20, 70 29, 84 18, 67 23, 07 27, 59 26, 79 31, 28 28, 55	
		e 223 223 223 223	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 15933 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 93 3. 5 4 4. 92 3. 74 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 19.75 21.42 12.63	42.15 28,11 37.85 36.03 20,70 29.84 18.67 93.07 27.59 26.79 31.28 28.55	
		e 223 223 123 123	111 107 102 106.66 58 48 71 59 101 61 51 71	181 143 154 1573 15733 71 66 83 73.33 129 81 70 93.33	3.48 2.73 4.09 3.50 2.39 2.57 4.21 3.05 5.89 2.09 4.14 4.04	5. 67 3. 92 6. 17 5. 25 2. 73 3. 5 4 4. 92 7. 5 2 2. 78 5. 68 5. 32	4.97 5.59 1.54 4.16 5.63 12,72 4.71 7.52 6.20 4.93 5.71 5.61	1.10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.59 19.58 31.81 22.99 12.67 15.15 9.63 12.48 14.72 18.75 21.42 18.63	42.15 28,11 37.85 36.03 20,70 29,84 18.67 23,07 27.59 26,79 31.28 28.55	

VARIEty NC. 2326 12 clear Green + Yellow 165 4.96 5.54 1.35 1.35 8-28 A1148 15.00 AL NO 3 4 165 5.54 1.35 1.35 8.78 148 4.96 15.00 3,98 4.69 2,68 13.42 118 23-95 BI 149 3.15 1.77 6.14 14.91 22.45 90 114 1,40 0 2 1.33 1.27 2.50 90 9.16 15, 83 26,33 3 120 0 14,72 . 89 99.33 127.66 1.96 6.66 24.24 79 8.57 1,90 105 3.90 5.18 14.28 28,66 C I 73
84
78.66 3.16 4.38 292 2 101 0 19.80 30,89 5.35 4.97 3.84 10.25 185 16.23 43.45 3 117 107.66 3.63 8.91 .91 16.77 34.33 D / 2 3 34 overlap Wide Defloiaters (Vellow) DI 40 42 1.78 1,87 2.38 2.38 0 6.54 46 56 2.67 3.26 3.57 8,92 20,53 2 5.35 3 68 75 4,40 4.85 6.66 0 2.66 13.73 51.33 57.66 2.95 3.32 4.20 1.78 4.65 13.60

VARIETY C-319 8 overlap Red + Blue 5.29 . 64 5.93 154 155 5.32 0 BI 0 4.96 2 133 4.81 1.45 0 1.45 2.23 137 5.49 2,19 3 168 182 158.00 3.90 11.59 4.22 0 151.66 4.83 2.52 0 8.41 C / 2 3 0 1 2 3 EI 2 3 Wide Defloiator ( 3" overlap) (Yellow) 2.19 7.69 15,38 82 91 5.49 6.09 0 BI 8.59 0 1,75 2 109 4.21 4.40 2,63 114 148 5.06 2.02 2.70 3 141 5.31 9.79 0 110.66 117.66 4.92 3.44 5.26 1.40 1.48 11.25 C / 2 3 DI 2 3 EI 2 3 1

	DIA		_	VARI	rety	- C	319		
	Rining		- 11		Nº 9-	7.	20	9.	Oberall
	Reps	Pintal	Esalt tol.	George Da	Dan	Their	OP	SAIR	XH 90
-	Red				~				
	A 1	108	137	5.91	7.50	2.91 4.56	,72	17.51	27.08
	3	135	174	6-09	7.85	6.89	0	15.51	28.50
	B1	16466	130.00	0, 10	1.35	4.72	. 24	11.30	68.66
	2								
	CI								
	2		E	-					
	T (								
	2								
	3								
6									
	Red & G	reen	131	7.32	8.57	1.52	0	12.97	21.83
	2	111	130	4.53	531	2.30	,76	11.53	15.15
_		12633	144	5.58	6.61	3.02	. 44	12.06	21.14
	2								
	3								
	C 1 2								
	3								
	D'								
	23	L							
0									
						_			
					-				

VARJETY G-36 Defloration en Scott tot Juss & Pan Ret Rom 9. Fler S. Dy 90 Stall Docald Repo Bintot to " overlop) Que / Red + 4.69 3.28 2.60 104 115 5.19 6.95 0 14.26 B1 2.23 2.23 0 7.26 2 128 3-43 134 132 143 4-89 121.33 130.66 4.28 3 132 5.30 2.79 .69 4.19 12,58 3.00 4.64 3.99 .23 11.53 CI 2 3 DI 2 3 E 1 2 3 3 " overlap Defloiator (Yellow) Wide .99 100 96 101 97 5.24 5-30 6.23 BI 0 0 4.63 4.68 1.03 0 5.67 2 2.08 5.44 90 96 5.10 4.16 0 11.35 3 95.33 98.00 4.99 1.73 1.02 7.75 5.14 0 2 3 D 1 2 3 E1 2 3

VARIEty 6-36 Red 1 103 9.80 155 6.51 838 258 22.58 40.06 2 114 144 6.25 169 13.88 6.04 26,87 4.76 7,69 2.30 3 103 130 6.01 10,76 25,53 106.66 143 7.81 15,74 30.82 7.44 01 2 3 CI 2 3 DI 2 3 Red - Green 7.09 193 8.72 16.58 25.75 A1 157 1.55 -51 2 120 152 8.75 1.31 19-73 0 28,14 3 135 166 3.87 16833 5.95 160 4.59 11.85 5.92 .74 23.11 137.33 7.35 2.92 . 41 16.05 25.66 BI 2 3 CI 2 3 DI 2 3

120

			VA	P/P.	ty	NO	C 2.	512	
			-						
			-						
$\bigcirc -$	Real								
	AI	115	160	5.18	7.21	1.25	2.50	24,37	33.31
	2	107	136	3.01	3.83	2.20	.73	18,38	24.33
	3	118	146	4.24	5-25	3.42	٥	15.75	23.42
		113.33	147.33	4.14	5.43	2.29	1.07	19.50	27.02
	13 1								_
	2			-					
	3	-			-				
	CI								
	2								
	3						1.1		
	01								_
	2					-	-		
	3								
				12 Th					
	Redti	Freen							
	AI	201	259	6.15	8.05	3,47	.38	18,53	28.64
<u> </u>	2	169	210	4.23	3.56	1.50	0	24.07	28,10
	3	180.66	232.10	4.00	6.65	268	176	16.74	17,85
	01	100100	600.00	3.10	0.00	0.00	. 21	14.01	212.1
	2								
	3								
									_
-	CI		-						
	2								
	Ŭ								
	D'								
	2						1		
	6								
	43								
	43								
	43								
	3								
	3								
	3								
	4 3								
	3								
	3								
	3								
	3								
	3								
	3								
	3								

VARIETY MC 25YZ Deflocitor Primin Reps Bint at Swall tot Stors 2 Dan Ret 2 Dan 7. Elew 20 00 20 Stall Decel 9 Spe Wide De Floiator (Vellow) 3" overlap 98 85 J31 105 3.52 3.77 3.80 195 1.50 10.19 2 88 3.18 3.29 3.40 0 0 6.59 89 91 90.66 94.66 91 4.83 4.94 2.19 0 0 2.03 3 3.84 4.00 3.13 .31 . 63 7.93 CI 2 3 D 1 2 3 E 1 2 3 ( 1" overlap) Red & Blue B1 179 195 3.43 3.74 4,61 ,51 3.07 11.64 2 125 132 3.48 3.68 ,15 4.54 0 8.78 3 153 165 3.15 4.05 2.42 4.84 10.42 0 152.33 164.00 3.55 3.82 2.34 042 4.15 10,28. C / 2 3 D 2 3 E 123

										+
	•									
		~	-			_	_			
-0-		han .	L'U'	- At	11.70	O al shall	e l	100 N	tria	<i>P</i> .
		roome	agge	ang	(Ar ser D	~ p jara	and the	m a	ngga	ng the
		lamin	a of	son	ne of the	leave	es u	hen, b	ecaus	e of this
		4	50	,	0		1 1 1			0 1/10
-		ann	ang	1, 7	key us	ere fo	Land.	up a	cong 7	he stalk.
		The U.	Ener 1	uero y	her t	ne to	stri	to the	low	
		ine no	Y	Vere 1					V -10 11 V	1 mpc (
		ad l	are 7	he m	idrib	on the	shell	e.		
		The de	A L	lou	alsha	atio 1	the	and	have -	
	Variety -	2326) 17:	no - betwe le	antel	Rowl		1100	Row 2	nc,	Averai
1	Hand rubber	fille	dout dropp	d Ryp 1	Rep 2	Rep 3	Rep (	Rep 2	Page 3	
	(yellow & Bren)	Leaves 1	i Bin	67	76	120	103	119	85	
		100.11	Stain 1	77	25	34/	3.0	3.2	22	
		- econd .	ma	14	20	0 F	- 0	0		
		Total	and the	89	111	154	133	149	107	
	_	2. Strippe	8	24.8%	31,5	2 2,1	22.6	20.1	20.5	23,6
	e a. 11			_		Service Providence				
	(R.D.	Leavis	Bi	51	52	174	10	SV	70	
(-	These	L	IT IS	54		37		54	10	
		Leaves S	Injope &	26	23	35	34	36	22	
_	_		11	0				0		
-		Total		80	75	89	94	90	92	220
		2. Mipped	c	26.3	50.7	07,0	24.0	4 47	23.1	22.0
	The	probles	a agreer	s to be	assoc	inted the	with t.	le acu	te anali	d leaf
_	atte	achmet.	Solution	would -	lie in a	feeding	device to	get the	leaf Ou	del the upper
-	type defoi	iator. Th	a friger	bar life	lister mi	ght work	e fetter	- this	condition	than the diper.
			head	Angles	- at t	me A	and r	uning -	leaves .	had not
_	1		filled	out be	cause of	larke .	rain	. 1 .		
	Var				0	/				2
	h 31	290	200	220	270	400	200	320	360 1	War 1
	100 000	310	29 "	320	300	280	320	340	(31	3
									<u> </u>	
	200-	1 0		2-0	11 4 0	200	2/0	4.04	200	2
X	2512	420	210	350	360	348	56	270	58 27	3
		56	36	33	0.6		~p (	57	0	Point of tangency
										was two with
-	2326	220	25 °	300	310	320	330	3/0	310	from stalk.
-	_	210	330	520	340	250	30 ,	400	30	.)
	C-314	520	460	300	340	340	300	380	400	~
. L.		300	35.0	340	340	38'	340	303	(35	,5)
			1		_					

Effectiveness of Hard and Soft Spiral Rubber Wiper Defoliators. Number in Parentheses are Damage Values in Percentage. Other Numbers are Total Harvesting Losses and Include Damage,Stalk Loss and Elevator Loss. Mean Values 1966

		Priming					
Defoliator	Variety	A	В	с			
Hard		25.67	11.53	6.07			
	G36	(5.95)	(4.29)	(3.19)			
Soft		30.82	7.78	8.05			
		(5.77)	(4.99)	(3.70)			
Hard		21.14	8.42	5.59			
	C319	(5.59)	(4.67)	(2.63)			
Soft		28.26	11.25	5.59			
		(5.70)	(3.92)	(3.30)			
Hard		26.92	10.28	9.08			
	N.C. 2512	(5.10)	(3.55)	(2.98)			
Soft		27.02	7.94	6.91			
		(4.14)	(4.84)	(2.10)			
Hard		27.86	15.89	4.84			
	N.C. 2326	(2.87)	(2.52)	(2.41)			
Soft		16.31	13.60	9.93			
		(3.65)	(2.95)	(3.69)			

		Priming				
Defeliator	Variety	A	в	С		
Hard		25.67	11.53	6.07		
	G36	(16.05)	(3.01)	(0.81)		
Soft		30.82	7.78	8.05		
		(15.73)	(1.02)	(1.58)		
Hard		21.14	8.42	5.59		
	C319	(12.06)	(1.21)	(0.77)		
Soft		28.26	11.25	5.59		
		(17.39)	(1.48)	(0.65)		
Hard		26,92	10.28	9.08		
	N.C. 2512	(19.10)	(4.15)	(2.14)		
Soft		27.02	7.94	6.91		
		(19.50)	(0.63)	(0.91)		
Hard		27.86	15.89	4.84		
	N.C. 2326	(20.16)	(5.38)	(1.94)		
Soft		16.31	13.60	9.93		
		(6.54)	(4.65)	(3.40)		

Total Harvesting Losses and Stalk Losses (in parentheses) For Hard and Soft Spiral Rubber Wipers. Mean Values 1966

		Priming					
Defoliator	Variety	A	в	C			
Hard		25.67	11.53	6.07			
	G36	(16.05)	(3.01)	(0.81)			
Soft		30.82	7.78	8.05			
		(15.73)	(1.02)	(1.58)			
Hard		21.14	8.42	5.59			
	C319	(12.06)	(1.21)	(0.77)			
Soft		28.26	11,25	5.59			
		(17.39)	(1.48)	(0.65)			
Hard		26,92	10.28	9.08			
	N.C. 2512	(19.10)	(4.15)	(2.14)			
Soft		227.02	7.94	6.91			
		(19.50)	(0.63)	(0.91)			
Hard		27.86	15.89	4.84			
	N.C. 2326	(20.16)	(5.38)	(1.94)			
Soft		16.31	13.60	9.93			
		(6.54)	(4.65)	(3.40)			

Total Harvesting Losses and Stalk Losses (in parentheses) For Hard and Soft Spiral Rubber Wipers. Mean Values 1966 Effectiveness of Hard and Soft Spiral Rubber Wiper Defoliators. Number in Parentheses are Damage Values in Percentage. Other Numbers are Total Harvesting Losses and Include Damage, Stalk Loss and Elevator Loss. Mean Values 1966

			Priming	
Defoliator	Variety	A	В	C
Hard		25.67	11.53	6.07
	G36 y	(5.95)	(4.29)	(3.19)
Soft		30.82	7.78	8.05
		(5.77)	(4.99)	(3.70)
Hard		21.14	8.42	5.59
	C319	(5.59)	(4.67)	(2.63)
Soft		28.26	11.25	5.59
		(5.70)	(3.92)	(3.30)
Hard		26.92	10.28	9.08
	N.C. 2512	(5.10)	(3.55)	(2.98)
Soft		27.02	7.94	6.91
		(4.14)	(4.84)	(2:10)
Hard		27.86	15.89	4.84
	N.C. 2326	(2.87)	(2.52)	(2.41)
Soft		16.31	13.60	9.93
		(3.65)	(2,95)	(3.69)

Effect of Rubber Resilience on the Operation of the Spiral Rubber Wiper Defoliator

The spiral rubber wiper defoliator, Figure 1, was conceived in spring of 1954 and operated in the field that same summer. In numerous field tests since that time it has been found to be a simple and effective device for removing leaves from approximately the lower half of the stalk. The knife defoliator is superior for removing the upper leaves. Success and adaptability of the spiral rubber wiper (SRW) to removing the lower leaves is due, at least in part, to the flexibility of the rubber web which allows for misalignment of the plant, resiliency of the material thus reducing stalk and leaf damage and simplicity of design which makes it adaptable to operating in the abrasive environment close to the ground.

In operation, two SRW units are used, one on each side of the row so that the plant stalk can pass between them, Figure 2. There may or may not be a gap between them depending on the severity of the desired action. In some cases the webs of the two units may overlap by as much as one inch. In essentially all cases some deflection of the web is necessary for the stalk to pass, being largest when the webs are overlapped most. Web deflection is limited to the general area of the wiper in contact with the stalk. That is, a deflection wave moves with the stalk as it progresses through the defoliators. Hardness (durometer) of the rubber material in the defoliator determines the extent to which the deflection is localized around the stalk and the amount of overlap possible without impeding the passage of stalks between the defoliators.

For field operation the units are mounted at an angle to the horizon. The

front end is higher than the rear and is fitted with a divider to separate the leaves to be harvested from those to be left on the stalk. For effective harvest, all parts of those leaves to be harvested must pass beneath the defoliator. Some difficulty has been experienced with varieties or crops on which the leaves grew upward at a small angle to the stalk. Leaves on such plants tend to pass through the defoliators with part of the midrib and the petiole below the defoliator in the swath area but with the main portion of the laminar above the defoliator. Leaf damage results especially to the foliar material on the petiole and the butt end of the leaf.

Because of the possible effects of defoliator design and rubber durometer on harvesting efficiency a set of experiments was set up to measure the effects of these variables. Three hardnesses of rubber material were used. These were, from softest to hardest 40-50, 50-60 and 70-80 durometer. Three sets of defoliators were made from the hard and intermediate material and two sets from the soft material. One extra set, except for the soft material, were modified by cutting slits along the axis to relieve some of the stress from twisting into a spiral. The other extra sets were modified by slicing the web part-way through from each side along the edges which came into contact with the plant. This was done to facilitate deformation of the material by the stalk and allow the material to conform more closely to the stalk.

The units were tested in plots of G-36, C-319, NC 2512 and NC 2326 varieties growing on the Central Crops Research Station, Clayton, N. C. during the summer of 1966. Evaluations were made of elevator loss, stalk loss, damage and total harvesting losses plus damage.

2

# Results and Discussion

There was little difference in the overall performance of the hard and soft rubber wiper units, Table 1. The defoliators made of intermediate hardness material gave results in the same general range as the hard and soft materials. These results indicate that there is a large amount tolerance available in the design and operation of SRW defoliators.

It should be noted that leaf damage (next to last column of Table 1) was approximately three to five percent with a few values between five and six percent. Stalk loss and elevator loss made up the rest of the value shown in the total loss plus damage column except for a small amount of operator errors which was present in some of the runs. Under the present acreage-poundage allotment program elevator and field losses would not represent severe disadvantages because the procedures could plant extra acreage to make up for it. Cost of these losses would be the cost of producing this extra tobacco up to the point of harvesting. A realistic estimate would be 15c/lb. or less than 1/4 of the value of the losses.

Stalk losses were quite high at the first of the season. The sand lugs were badly burned and sun scalded due to hot dry weather so the data starts with the leaves just above the lugs as priming 4. These leaves were attached to the stalk at an acute angle thus making it difficult for the defoliator dividers to separate the ripe swath from the rest of the plant. Because of this, difficulty: was experienced in stripping the lamine off some of the leaves. As these leaves were folded up along the stalk the wipers were free to strip part

3

Variety	Defoliator	Priming				
			Elevator Loss, %	Stalk Loss %	Leaf Dan- age Z	Total loss plus Damage %
G 36	Hard					
		A	2.93	16.05	5.95	25.67
		В	3.99	3.01	4.29	11.53
		C	2.06	0.81	3.19	6.07
	Soft					
		A	7.42	15.73	5.77	30.82
		B	1.73	1.02	4.99	7.78
		C	2.81	1.58	3.70	8.05
C-319	Hard					
		A	3.03	12.06	5.59	21.14
		B	2.53	1.21	4.67	8.42
		C	2.52	0.77	2.63	5.59
	Soft					
		A	4.92	17.39	5.70	28.26
		B	1.40	1.48	3.92	11.25
		C	1.64	0.65	2.30	5.59
N.C.2512	Hard					
		A	2.69	19.10	5.10	26.92
		В	2.34	4.15	3.55	10.28
		c	3.96	2.14	2.98	9.08
	Soft					
		Α	2.29	19.50	4.14	27.02
		B	3.13	0.63	4.84	7.94
		C	3.86	0.91	2.10	6.91
N.C.2326	Hard					
		A	4.50	20.16	2.87	27.86
		B	7.97	5.38	2.52	15.89
		c	0.49	1.94	2.41	4.84
	Soft					
		A	6.04	6.54	3.65	16.31
		B	4.20	4.65	2.95	13.60
		C	1.67	3.40	3.69	9.93

Table 1. Effect of Defoliator Design on Leaf Loss and Damage.

of the lamina and have the midrib and the rest of the lamina on the stalk. The severity of this action expressed as a percentage of the harvested leaves is given in Table 2.

	Table	2. Effect Materi	of Rubber H al from Leav	lardness on S res Left on S	tripping of talk, N.C.	f Lamina 2326 Variety.
		Row 1			Row 2	
Defoliator	Rep 1	Rep 2	Rep 3	Rep 1	Rep 2	Rep 3
Hard	24.8	3.15	22.1	22.6	20.1	20.5
Soft	32.5	30.7	39.3	36.2	40.0	23.9

Leaf angles of the lower leaves to the stalk are given in Table 3. These angles increased later in the season after several rains.

> Table 3. Leaf Angle at Time of Priming A. Average Values Two Inches From Base of Petiole.

Variety	G 36	C 319	N.C. 2512	N.C. 2326
Angle	31.30	35.50	37.50	30.7 <sup>0</sup>

There were no appreciable differences in the harvesting efficiency of the defoliators with and without sliced edges. Also slitting and removing material along the axis of the wiper blade did not improve its action.

# Summary

Fiels tests of the effects of rubber resiliency on the operational effectiveness of spiral rubber wiper defoliators showed that variations in durometer values from 40 to 80 units did not appreciable affect the results. The adverse effects of acute angles between the stalk and the leaf were evident. Variations in the design of the defoliator with respect to edge slicing or central slits did not produce detectable changes in the operating characteristics.

Additional work to determine if durometer value has an effect on the harvesting characteristics of a more normal crop of tobacco is recommended.

4										
	Table 1.	Life	to D	foliate	r. Dese	an on	heat L	055 00	1 Dame	ege,
			0	0		1	0			0
							1000			and the second second
-	17 . 1.	D. P.M.	0						have been	
-(,)-	Varietz	Defotation	fremery	EL L	ch 1/2/	1 1 2	5440			
			/	Klewetter	Stalk loss	Leaf Dam-	Total Last			
	436	Hand	A	-055,15	4	age, 1	plus Damay			
	19- 51-	110-m	A	2.9.2	16.05	595	25.17			
			13	3,99	3.61	4.29	11.53			
			C	2.06	0.81	3,19	4.07.			
-										
_		Soft	4						1.1.1.1.1.1	The second second
-			14	142	15.73	5,77	30.82			
-			B	1113	1.02	4.99	7.78			
			C	£181	1.80	5,10	0.03			
	C-319	Hard								
			4	3.03	12,06	5.59	21,14			
-			ß	2.53	1.21	4.67	8.42			
			C	2,22	0.77	2.63	5.39			
		Saft								
		00.1	A	492	17.39	5 70	28,26			
S			B	1,40	1.48	3.92	11.25			
			C	1.64	0.65	2,36	5.59			
_	110 250		*							
	N.C.23/2	Hard	n	210	14 (1)	FD	62			
			4	2.69	17.10	5,10	26.70			
-			0	2 6/	4115	5,00	9.40	_		
1.1				JUTE	a.11-4	+0/D	100			
		Sitt								
C			4	2,29	19.50	4,14	27.02			
_			B	3,13	0.63	4.84	7.94			
			C	3,86	0.91	2,10	6.91			
							_		_	
	N.C 2324	U. J	_		_					
1	220	Frend	At	4.50	20 11	2,87	27,86			
			B	7.97	5.38	2.52	15.89			
			C	0.49	1,94	2,41	4184			
		1. 0.					1.1.			
-		So Ft	0	1.51	1 27.	- 15	11 -			
			4	6.04	4:54	5,60	16.3/			
			0	4.20	210	2195	0.62			
~			6	1.4.1.	2140	5,67	7.95			
	-									
_										
-	-								_	
-					_					
and the second se										