

# IICA



Centro Interamericano de  
Documentación y  
Información Científica  
03 MAR 1994  
IICA - CIOLA

**INFORME DE ANALISIS ESTADISTICO  
ESTUDIO DE DIAGNOSTICO DE LA  
SITUACION DEL CACAO  
EN GUATEMALA**

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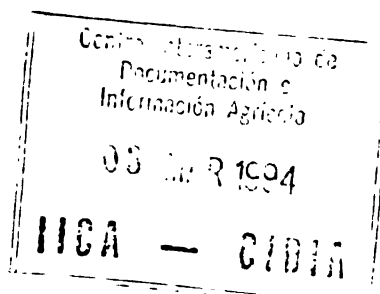
OFICINA DEL IICA EN GUATEMALA





IICA/CI/CI/CI

**RED REGIONAL DE GENERACION Y TRANSFERENCIA DE TECNOLOGIA  
EN CACAO  
PROCACAO**



**INFORME DE ANALISIS ESTADISTICO  
ESTUDIO DE DIAGNOSTICO DE LA  
SITUACION DEL CACAO  
EN GUATEMALA**

**Guatemala, junio de 1990**

**INSTITUTO INTERAMERICANO DE COOPERACIÓN PARA LA AGRICULTURA  
OFICINA EN GUATEMALA**

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00006629

PRESENTACION:

110777

El presente informe contiene los resultados del analisis estadistico de la encuesta realizada a nivel nacional en 1989 para efectuar un diagnostico de la situacion del cultivo de cacao en Guatemala. Como antecedentes, es importante mencionar que este estudio se inicio con un diseno de boleta abierta, lo que dificulta mucho su analisis estadistico.

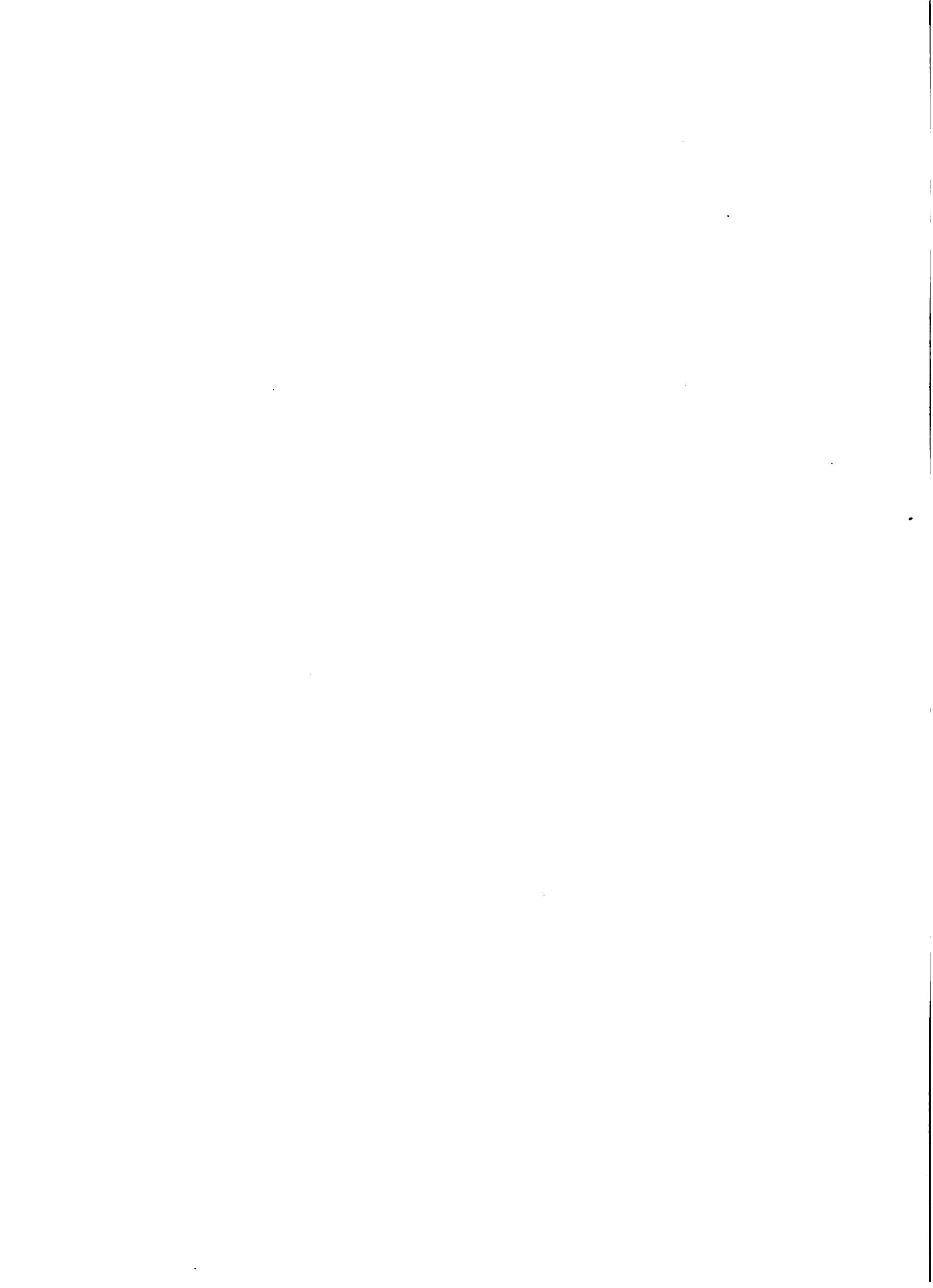
Lo anterior obligo a reestructurar la boleta, y dicho trabajo, lo realizo el Dr. James Corven de PROCACAO. Posteriormente se codifico la boleta reestructurada y luego se efectuó el analisis estadistico, que consistio en estadística descriptiva, tablas de frecuencia y graficas circulares.

El informe tambien contiene algunas conclusiones, quizá las mas evidentes, pero las mismas asi como los demas resultados, estan sujetos al entorno sobre el cual giro el estudio y que escapan al campo de accion del biometrista.

Finalmente se sugiere la presentacion de este informe a la comision que redactara el documento del estudio la que tendra los elementos necesarios para darle la interpretacion correcta a la informacion.

MARCO TULIO ACEITUNO JUAREZ

NOTA: al presente trabajo se le agrega un diskette con el archivo original de datos que se llama DATOS.WKQ.



SAS

UNIVARIATE

Variable=V1 EXTENSION DE LA FINCA EN MANZANAS.

Moments

N	192	Sum Wgts	192
Mean	280.8279	Sum	53918.95
Std Dev	747.5037	Variance	558761.8
Skewness	4.743167	Kurtosis	26.13217
CV	266.1786	Std Mean	53.94643

Quantiles(Def=5)

Extremes

100% Max	5760	99%	4800	Lowest	Highest
75% Q3	128	95%	1472	0.17	2092
50% Med	33.5	90%	832	0.3	3840
25% Q1	12	10%	3	0.35	3840
0% Min	0.17	5%	0.5	0.4	4800
		1%	0.3	0.4	5760
Range	5759.83				
Q3-Q1	116				
Mode	14				

Missing Value	.
Count	15
% Count/Nobs	7.25

Variable=V2 EXTENSION SEMBRADA DE CACAO EN MANZANAS.

Moments

N	207	Sum Wgts	207
Mean	15.37145	Sum	3181.89
Std Dev	35.39137	Variance	1252.549
Skewness	4.266301	Kurtosis	21.90856
CV	230.2409	Std Mean	2.45987

Quantiles(Def=5)

Extremes

100% Max	256	99%	160	Lowest	Highest
75% Q3	13	95%	72	0.08	130
50% Med	2	90%	42.7	0.09	160
25% Q1	0.5	10%	0.19	0.15	160
0% Min	0.08	5%	0.16	0.16	250
		1%	0.15	0.16	256
Range	255.92				
Q3-Q1	12.5				
Mode	1				





Variable=V3 MANZANAS DE CACAO EN PRODUCCION.

Moments

N	207	Sum Wgts	207
Mean	10.14763	Sum	2100.56
Std Dev	26.28822	Variance	691.0706
Skewness	4.633605	Kurtosis	26.10146
CV	259.0577	Std Mean	1.827158

Quantiles(Def=5)

Extremes

100% Max	200	99%	125	Lowest	Highest
75% Q3	7	95%	56	0	84
50% Med	0.94	90%	30	0	113
25% Q1	0	10%	0	0	125
0% Min	0	5%	0	0	192
		1%	0	0	200
Range	200				
Q3-Q1	7				
Mode	0				

Variable=V16 DOSIS DE FERTILIZACION EN ONZAS POR ARBOL.

Moments

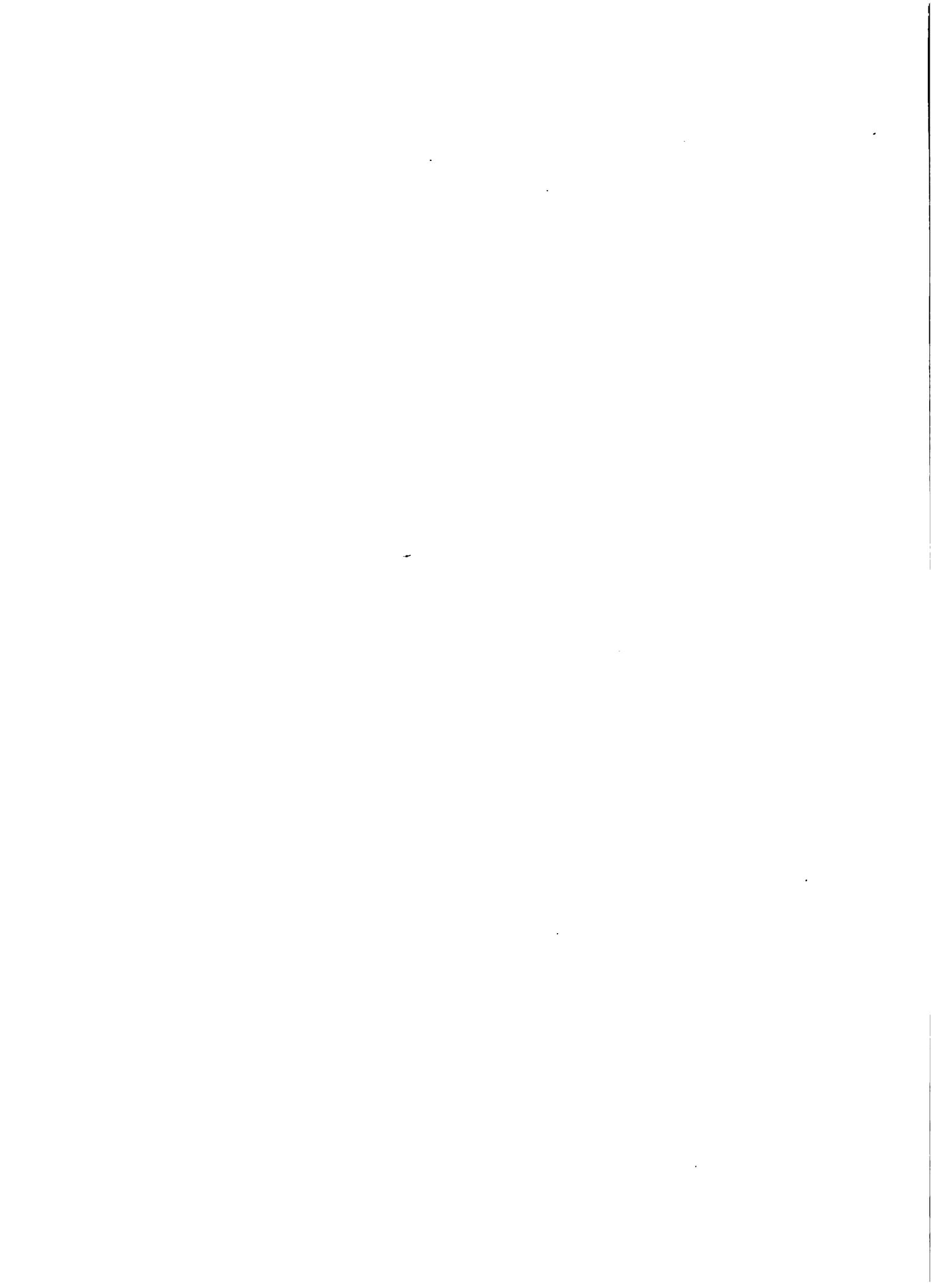
N	156	Sum Wgts	156
Mean	2.461538	Sum	384
Std Dev	3.233663	Variance	10.45658
Skewness	1.830467	Kurtosis	4.316304
CV	131.3676	Std Mean	.2589002

Quantiles(Def=5)

Extremes

100% Max	16	99%	16	Lowest	Highest
75% Q3	4	95%	8	0	8
50% Med	1.5	90%	8	0	10
25% Q1	0	10%	0	0	16
0% Min	0	5%	0	0	16
		1%	0	0	16
Range	16				
Q3-Q1	4				
Mode	0				

Missing Value .  
 Count 51  
 % Count/Nobs 24.64



variable=V25

RENDIMIENTO DE CACAO SECO EN QUINTALES POR MANZANA.

Moments

N	193	Sum Wgts	193
Mean	9.287668	Sum	1792.52
Std Dev	61.60937	Variance	3795.715
Skewness	13.70897	Kurtosis	189.5626
CV	663.3459	Std Mean	4.43474

Quantiles(Def=5)

Extremes

100% Max	857	99%	34	Lowest	Highest
75% Q3	8	95%	16.5	0	20
50% Med	3	90%	12	0	20
25% Q1	0	10%	0	0	34
0% Min	0	5%	0	0	34
		1%	0	0	857
Range	857				
Q3-Q1	8				
Mode	0				

Missing Value	.
Count	14
% Count/Nobs	6.76

variable=V31

No. DE PERSONAS QUE DEPENDEN DIRECTAMENTE DEL CULTIVO.

Moments

N	154	Sum Wgts	154
Mean	9.993506	Sum	1539
Std Dev	41.66055	Variance	1735.601
Skewness	10.89468	Kurtosis	127.2926
CV	416.8762	Std Mean	3.357103

Quantiles(Def=5)

Extremes

100% Max	500	99%	107	Lowest	Highest
75% Q3	7	95%	35	0	36
50% Med	4	90%	12	0	40
25% Q1	2	10%	0	0	80
0% Min	0	5%	0	0	107
		1%	0	0	500
Range	500				
Q3-Q1	5				
Mode	0				

Missing Value	.
Count	53
% Count/Nobs	25.60



variable=v4

TOPOGRAFIA DEL AREA DESTINADA AL CULTIVO DE CACAO

	V4	Frequency	Percent	Cumulative Frequency	Cumulative Percent
PLANA	1	95	46.1	95	46.1
ONDULADA	2	65	31.6	160	77.7
QUEBRADA	3	41	19.9	201	97.6
	12	2	1.0	203	98.5
	23	2	1.0	205	99.5
	123	1	0.5	206	100.0

Frequency Missing = 1

variable=v5

TENENCIA DE LA TIERRA

	V5	Frequency	Percent	Cumulative Frequency	Cumulative Percent
PROPIETARIO	1	146	70.9	146	70.9
POSEEDOR	2	41	19.9	187	90.8
ARRENDANTE	3	1	0.5	188	91.3
OTRO	4	18	8.7	206	100.0

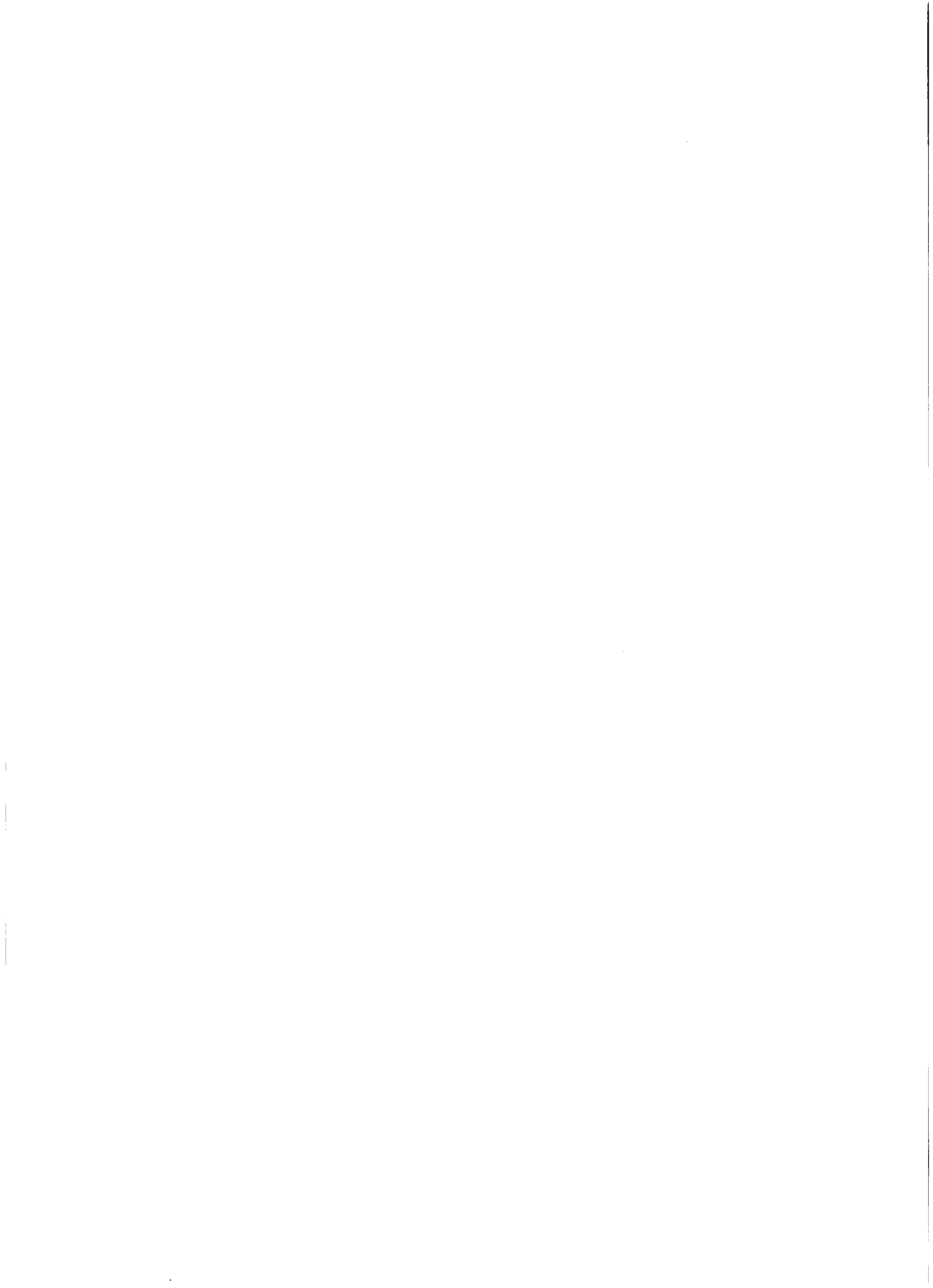
Frequency Missing = 1

variable=v6

VIAS DE ACCESO

	V6	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ASFALTO	1	22	10.8	22	10.8
TERRACERIA	2	149	73.0	171	83.8
OTRO	3	26	12.7	197	96.6
	12	6	2.9	203	99.5
	23	1	0.5	204	100.0

Frequency Missing = 3



variable=v7 MATERIALES DE CACAO QUE EMPLEA

	V7	Frequency	Percent	Cumulative Frequency	Cumulative Percent
CRIOLLO	1	63	30.7	63	30.7
CLON	2	72	35.1	135	65.9
HIBRIDO	3	29	14.1	164	80.0
	12	17	8.3	181	88.3
	13	9	4.4	190	92.7
	21	1	0.5	191	93.2
	23	9	4.4	200	97.6
	31	1	0.5	201	98.0
	32	1	0.5	202	98.5
	34	1	0.5	203	99.0
	123	2	1.0	205	100.0

CATEGORIA 4 = NO SE

Frequency Missing = 2

variable=v8 FORMAS DE PROPAGACION

	V8	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SEMILLA	1	121	58.5	121	58.5
ESTACA	2	8	3.9	129	62.3
INJERTO	3	47	22.7	176	85.0
	12	4	1.9	180	87.0
	13	19	9.2	199	96.1
	23	4	1.9	203	98.1
	31	2	1.0	205	99.0
	32	1	0.5	206	99.5
	131	1	0.5	207	100.0





variable=v9

LUGAR DE PROCEDENCIA DEL MATERIAL DE SIEMBRA

	V9	Frequency	Percent	Cumulative Frequency	Cumulative Percent
DEL LUGAR	1	64	31.2	64	31.2
OTRA FINCA	2	48	23.4	112	54.6
BRILLANTES	3	70	34.1	182	88.8
OTRO	4	7	3.4	189	92.2
	12	1	0.5	190	92.7
	13	3	1.5	193	94.1
	14	2	1.0	195	95.1
	23	1	0.5	196	95.6
	24	1	0.5	197	96.1
	31	1	0.5	198	96.6
	34	5	2.4	203	99.0
	124	2	1.0	205	100.0

Frequency Missing = 2

variable=v10

SISTEMA DE SIEMBRA

	V10	Frequency	Percent	Cumulative Frequency	Cumulative Percent
AL CUADRO	1	184	89.3	184	89.3
TRESBOLILLO	2	3	1.5	187	90.8
COMBINADO	3	19	9.2	206	100.0

Frequency Missing = 1



variable=v11 DISTANCIA DE SIEMBRA

	V11	Frequency	Percent	Cumulative Frequency	Cumulative Percent
> 4 X 4 mts	1	40	19.6	40	19.6
4 X 4 mts	2	111	54.4	151	74.0
3 X 3 mts	3	39	19.1	190	93.1
< 3 X 3 mts	4	3	1.5	193	94.6
	12	7	3.4	200	98.0
	13	1	0.5	201	98.5
	14	1	0.5	202	99.0
	23	1	0.5	203	99.5
	133	1	0.5	204	100.0

Frequency Missing = 3

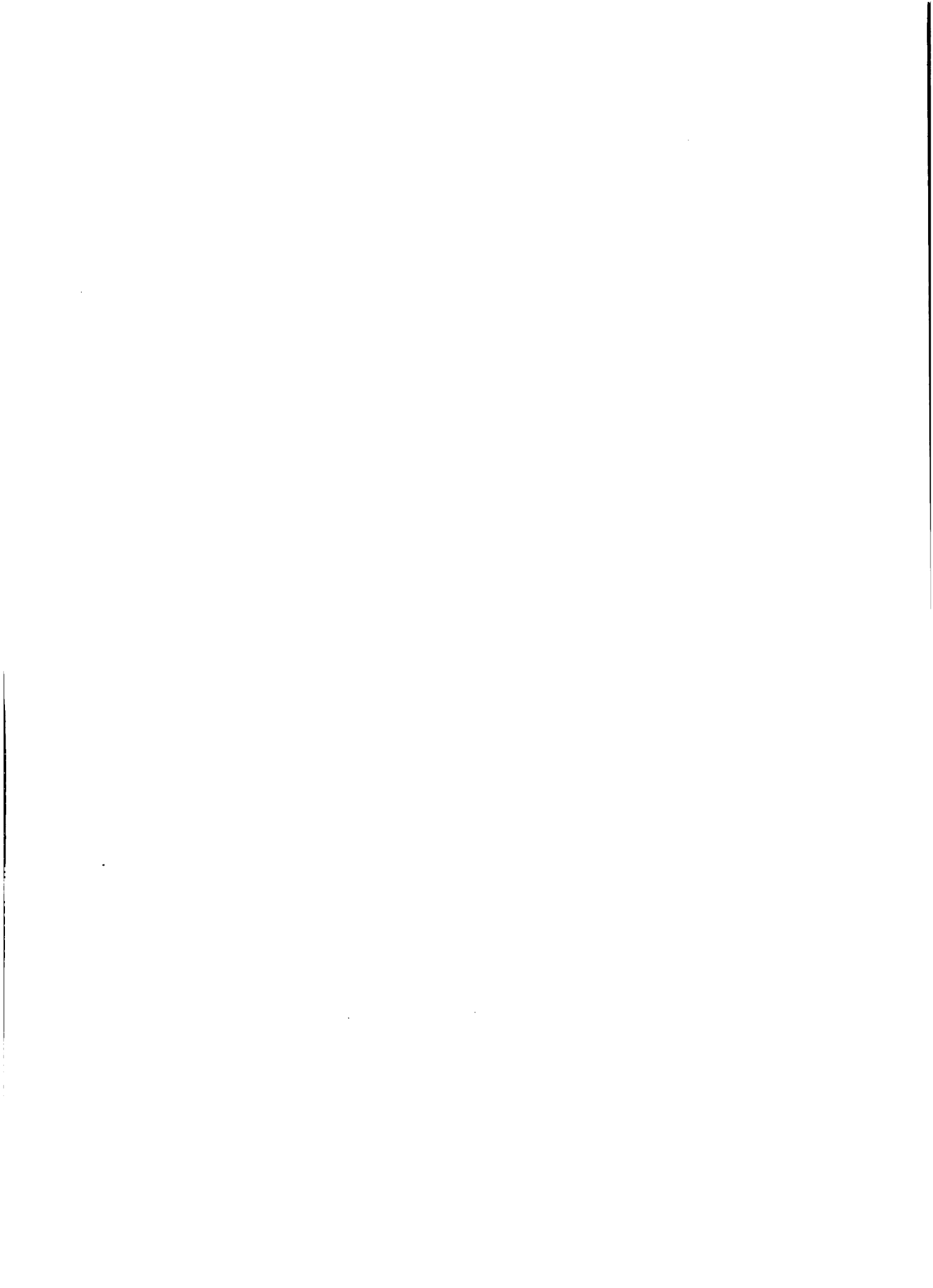
variable=v12 ESPECIES USADAS PARA SOMBRA

	V12	Frequency	Percent	Cumulative Frequency	Cumulative Percent
GUAMO	1	1	0.5	1	0.5
MADRE CACAO	5	46	22.2	47	22.7
FRUTALES	6	67	32.4	114	55.1
NATIVOS	7	22	10.6	136	65.7
NINGUNO	8	3	1.4	139	67.1
OTRO	9	68	32.9	207	100.0

variable=v13 DISTANCIAS EMPLEADAS PARA PLANTAS DE SOMBRA

	V13	Frequency	Percent	Cumulative Frequency	Cumulative Percent
> 5 X 5 mts	1	88	44.2	88	44.2
5 X 5 mts	2	6	3.0	94	47.2
4 X 4 mts	3	25	12.6	119	59.8
AL AZAR	4	80	40.2	199	100.0

Frequency Missing = 8



variable=v14

No. DE APLICACIONES DE FERTILIZANTE POR AÑO

	V14	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NUNCA	1	112	70.0	112	70.0
1 POR AÑO	2	27	16.9	139	86.9
2 POR AÑO	3	14	8.8	153	95.6
> 2 POR AÑO	4	5	3.1	158	98.7
IRREGULAR	5	1	0.6	159	99.4
	12	1	0.6	160	100.0

Frequency Missing = 47

variable=v15

TIPO O FORMULA DE FERTILIZANTE.

	V15	Frequency	Percent	Cumulative Frequency	Cumulative Percent
COMPLETO	1	67	41.9	67	41.9
UREA	2	15	9.4	82	51.2
FOLIAR	3	5	3.1	87	54.4
NINGUNO	5	73	45.6	160	100.0

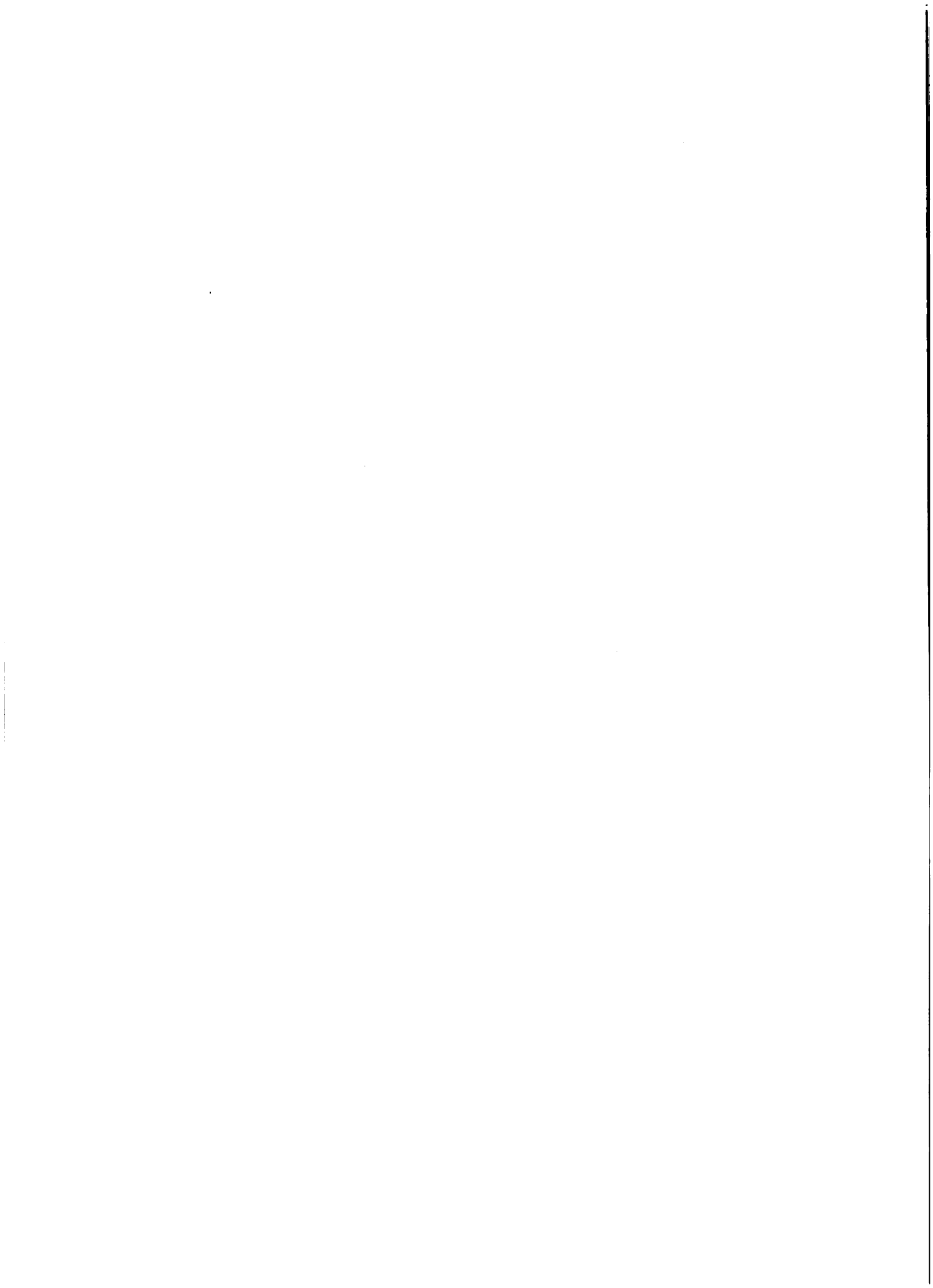
Frequency Missing = 47

variable=v17

EPOCA DE APLICACION DE FERTILIZANTE

	V17	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ENERO-MARZO	1	5	3.2	5	3.2
ABRIL-JUNIO	2	30	19.1	35	22.3
JULIO-SEPT	3	4	2.5	39	24.8
OCT-DICIEM	4	8	5.1	47	29.9
NINGUNA	5	70	44.6	117	74.5
	12	2	1.3	119	75.8
	14	1	0.6	120	76.4
	23	3	1.9	123	78.3
	24	22	14.0	145	92.4
	34	1	0.6	146	93.0
	123	4	2.5	150	95.5
	124	1	0.6	151	96.2
	234	3	1.9	154	98.1
	1234	3	1.9	157	100.0

Frequency Missing = 50



variable=v18

PRESENCIA DE ENFERMEDADES

	V18	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	185	92.5	185	92.5
NO	2	15	7.5	200	100.0

Frequency Missing = 7

variable=v19

APLICACIONES DE QUIMICOS CONTRA ENFERMEDADES

	V19	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	59	29.8	59	29.8
NO	2	139	70.2	198	100.0

Frequency Missing = 9

variable=v20

PRESENCIA DE PLAGAS

	V20	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	175	91.6	175	91.6
NO	2	16	8.4	191	100.0

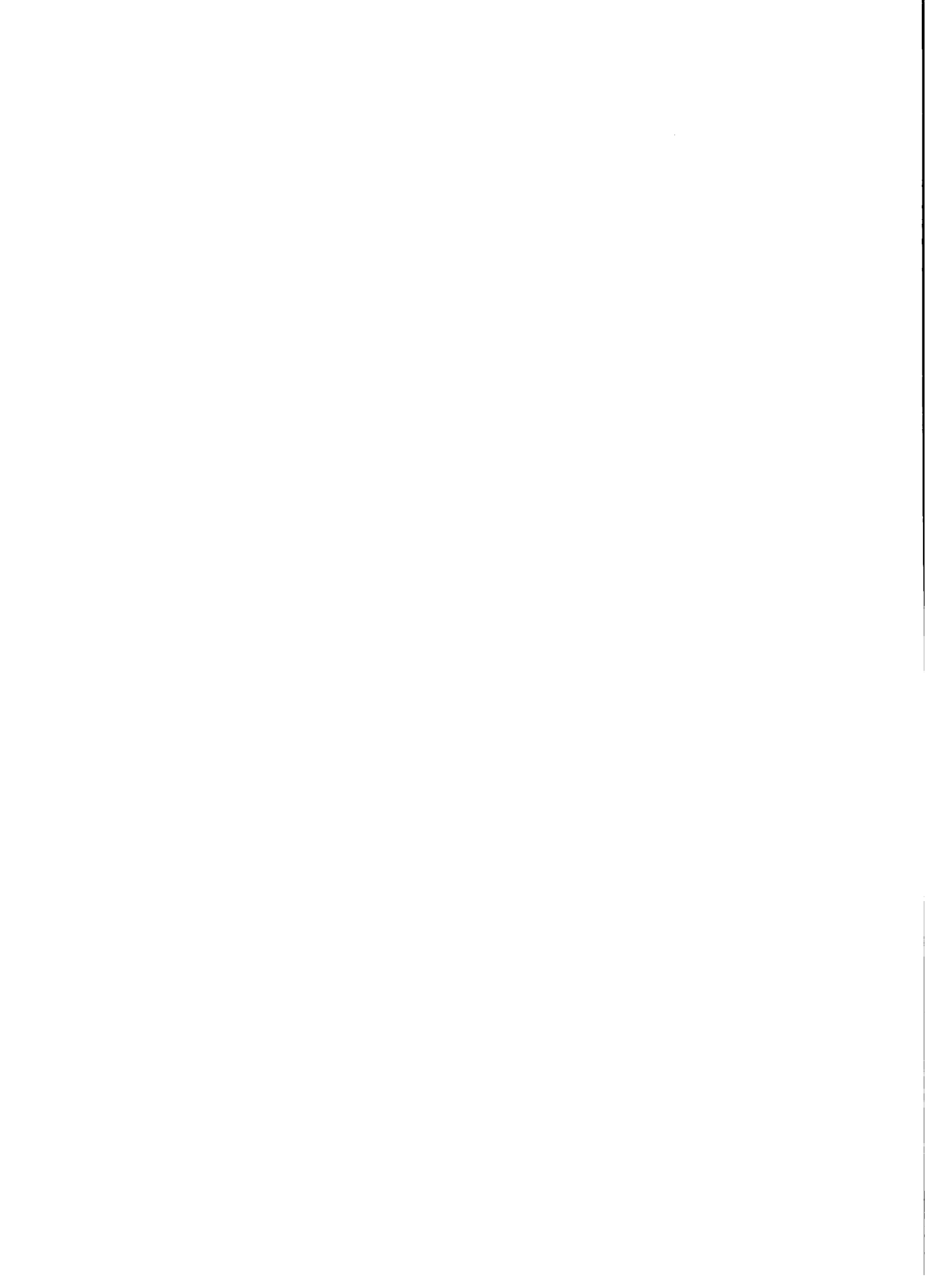
Frequency Missing = 16

variable=v21

PODA DEL CACAO

	V21	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	115	58.4	115	58.4
NO	2	82	41.6	197	100.0

Frequency Missing = 10





variable=v22            DESHIJE DEL CACAO

	V22	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	139	68.8	139	68.8
NO	2	63	31.2	202	100.0

Frequency Missing = 5

variable=v23            ACOSTUMBRA A FERMENTAR EL CACAO

	V23	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	103	56.9	103	56.9
NO	2	78	43.1	181	100.0

Frequency Missing = 26

variable=v24            TECNICA DE SECADO

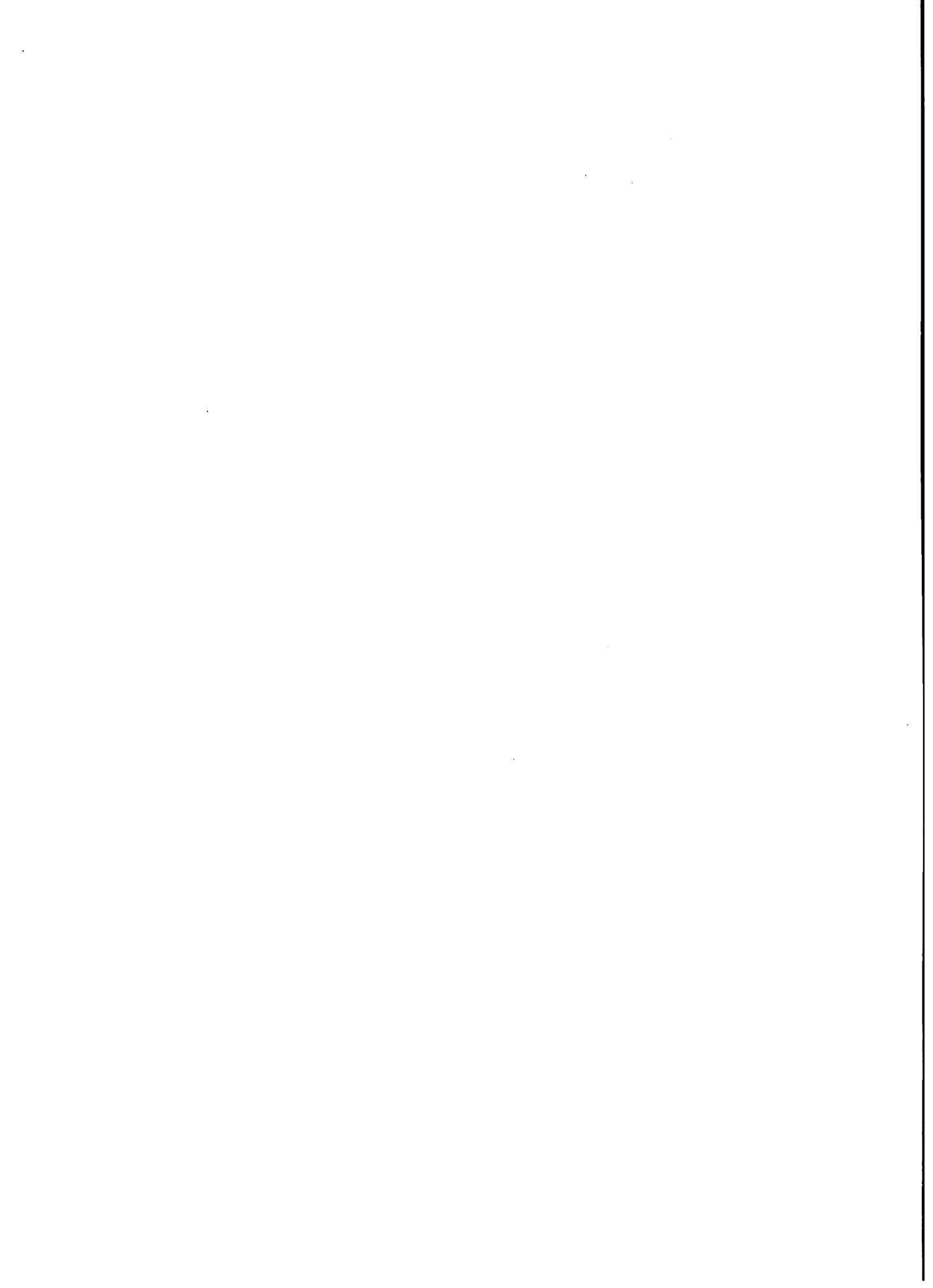
	V24	Frequency	Percent	Cumulative Frequency	Cumulative Percent
ASFALTO	1	1	0.7	1	0.7
CONCRETO	2	56	40.3	57	41.0
MADERA	3	14	10.1	71	51.1
LAMINA	4	8	5.8	79	56.8
OTRO	5	60	43.2	139	100.0

Frequency Missing = 68

variable=v26            INTERES EN AUMENTAR AREAS DE SIEMBRA

	V26	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	119	58.9	119	58.9
NO	2	83	41.1	202	100.0

Frequency Missing = 5



variable=v27

ASISTENCIA TECNICA

	V27	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	95	46.3	95	46.3
NO	2	110	53.7	205	100.0

Frequency Missing = 2

variable=v28

ASISTENCIA CREDITICIA

	V28	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	25	12.6	25	12.6
NO	2	174	87.4	199	100.0

Frequency Missing = 8

variable=v29

ES LA ACTIVIDAD AGRICOLA LA PRINCIPAL

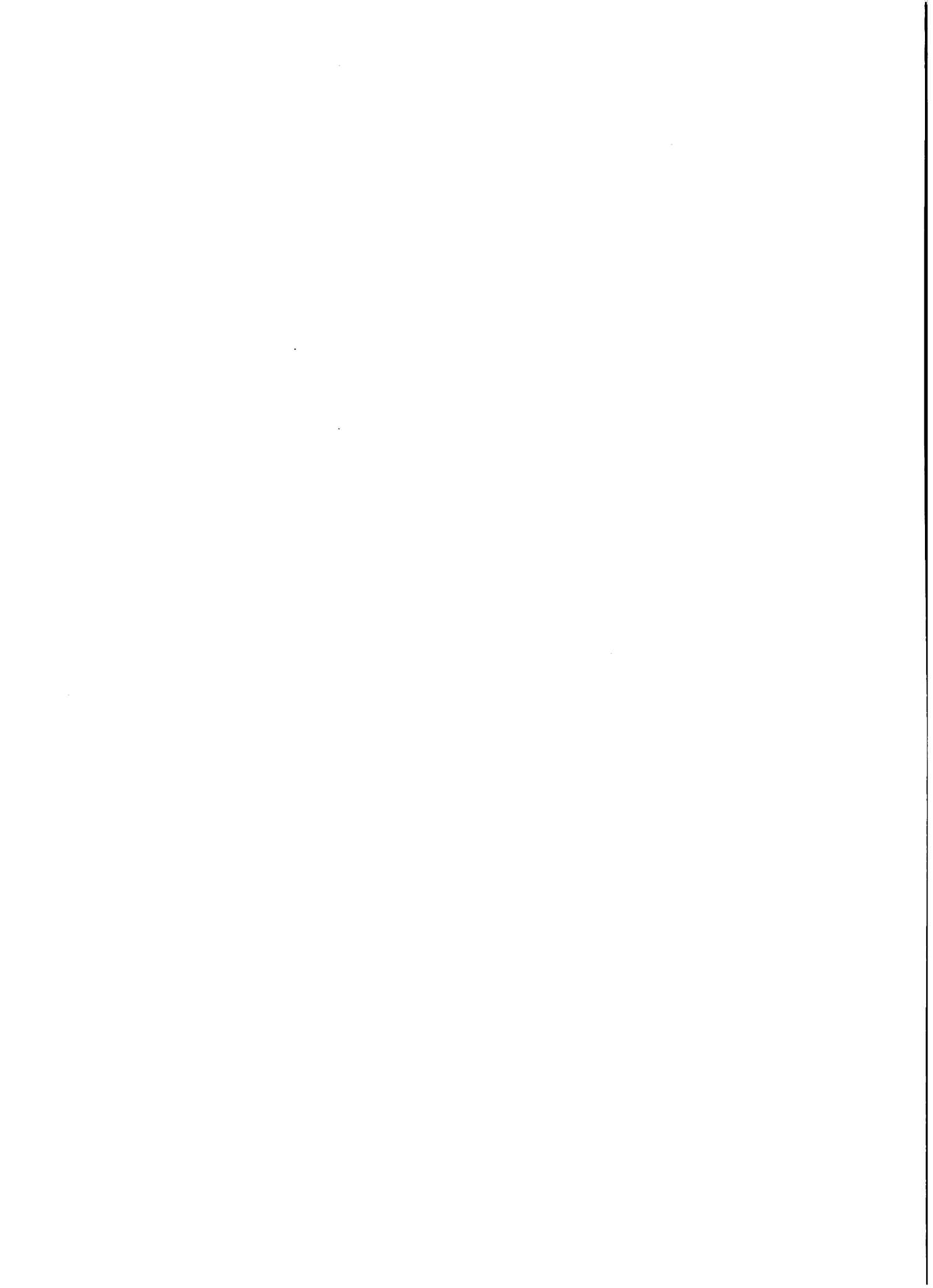
	V29	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	167	80.7	167	80.7
NO	2	40	19.3	207	100.0

variable=v30

IMPORTANCIA DEL CACO EN LOS INGRESOS FAMILIARES

	V30	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NINGUNA	1	60	29.4	60	29.4
POCA	2	86	42.2	146	71.6
ALGUNA	3	37	18.1	183	89.7
MUCHA	4	21	10.3	204	100.0

Frequency Missing = 3



variable=v32

GRADO DE ESCOLARIDAD

	V32	Frequency	Percent	Cumulative Frequency	Cumulative Percent
NINGUNO	1	64	32.8	64	32.8
PRIMARIA	2	89	45.6	153	78.5
SECUNDARIA	3	15	7.7	168	86.2
DIVERSIFIC	4	19	9.7	187	95.9
UNIVERSIT	5	7	3.6	194	99.5
	52	1	0.5	195	100.0

Frequency Missing = 12

variable=v33

PROBLEMAS DE MANO DE OBRA

	V33	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	44	22.1	44	22.1
NO	2	155	77.9	199	100.0

Frequency Missing = 8

variable=v34

TIPO DE MANO DE OBRA UTILIZADA

	V34	Frequency	Percent	Cumulative Frequency	Cumulative Percent
CONTRATADA	1	60	29.4	60	29.4
FAMILIAR	2	123	60.3	183	89.7
NINGUNA	3	20	9.8	203	99.5
	12	1	0.5	204	100.0

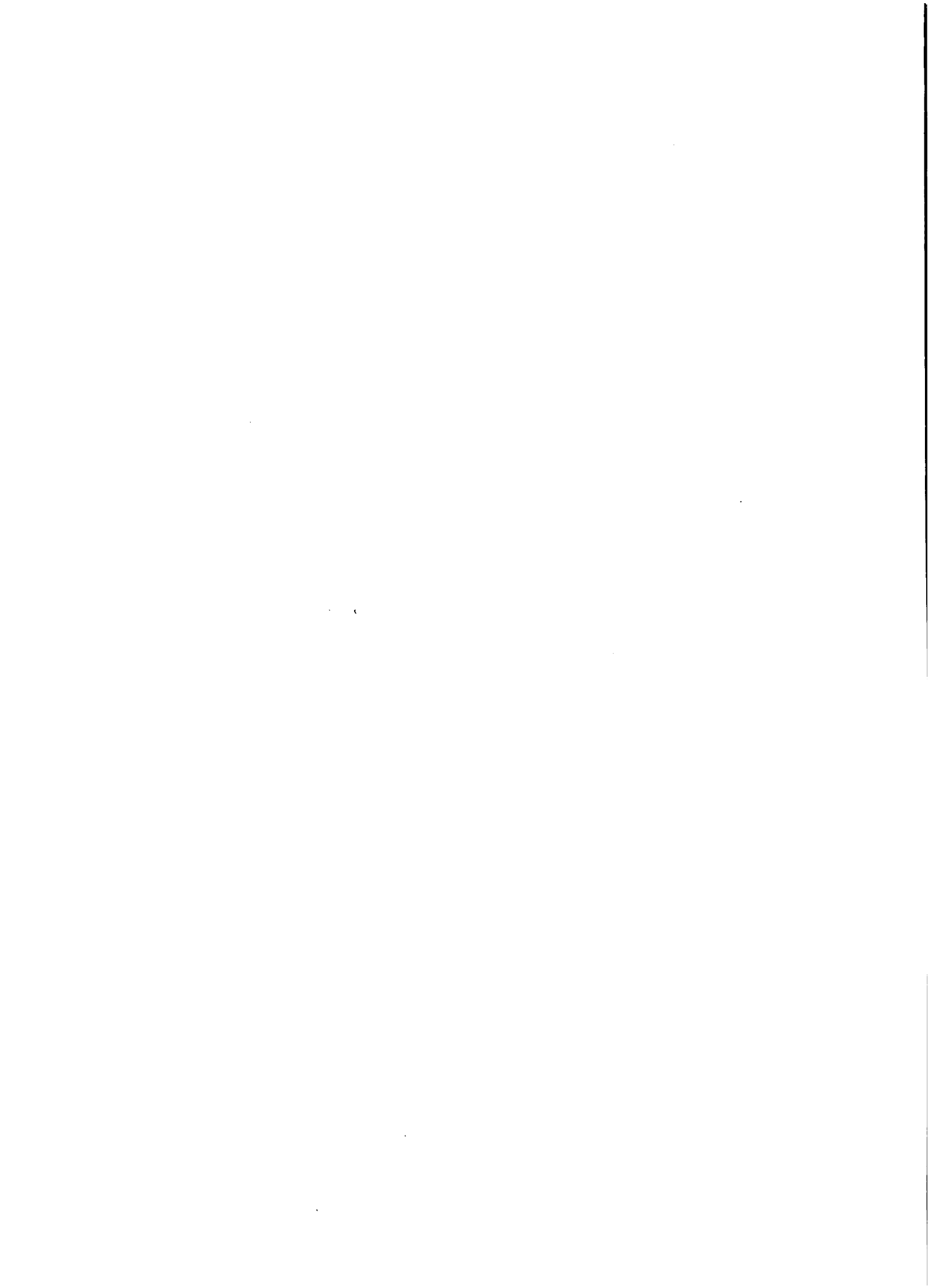
Frequency Missing = 3

variable=v35

PERTENECE A ALGUNA ORGANIZACION

	V35	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	45	22.2	45	22.2
NO	2	158	77.8	203	100.0

Frequency Missing = 4



variable=v36 LE GUSTARIA PERTENECER A ALGUNA ORGANIZACION

	V36	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	167	83.1	167	83.1
NO	2	34	16.9	201	100.0

Frequency Missing = 6

variable=v37 SUGIERE MAS CREDITO PARA CACAO

	V37	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	18	100.0	18	100.0

Frequency Missing = 189

variable=v38 SUGIERE MAS ASISTENCIA TECNICA

	V38	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	28	100.0	28	100.0

Frequency Missing = 179

variable=v39 SUGIERE MAS ASISTENCIA DE MERCADEO

	V39	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	26	100.0	26	100.0

Frequency Missing = 181

variable=v40 SUGIERE MAS ASISTENCIA EN INSUMOS

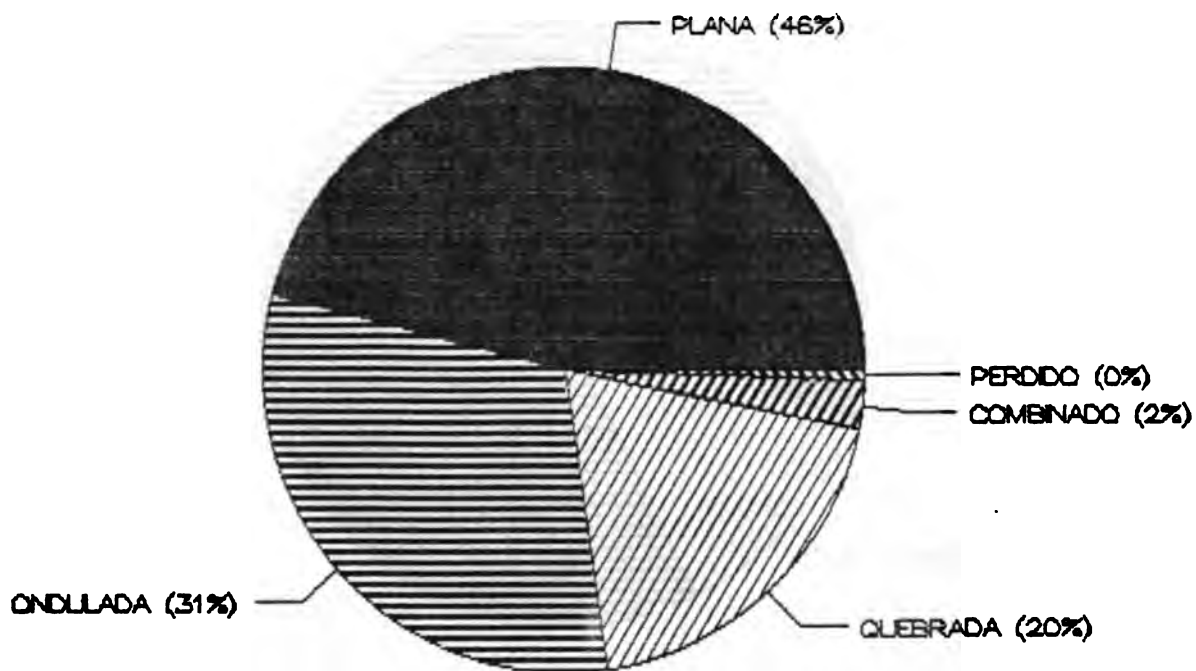
	V40	Frequency	Percent	Cumulative Frequency	Cumulative Percent
SI	1	9	100.0	9	100.0

Frequency Missing = 198

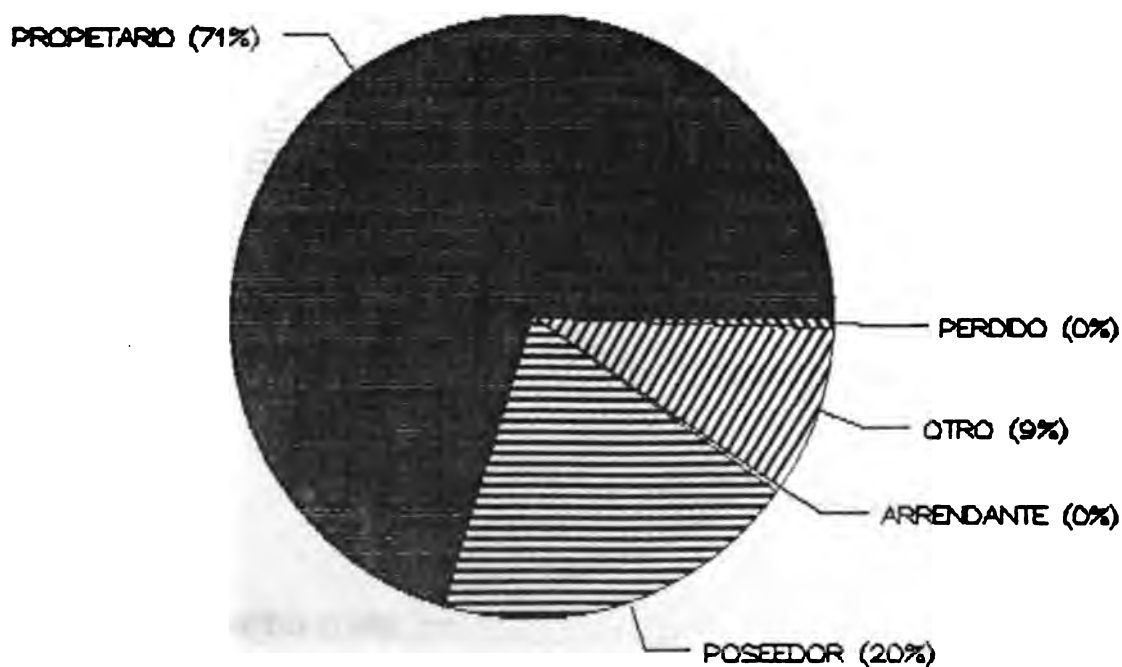


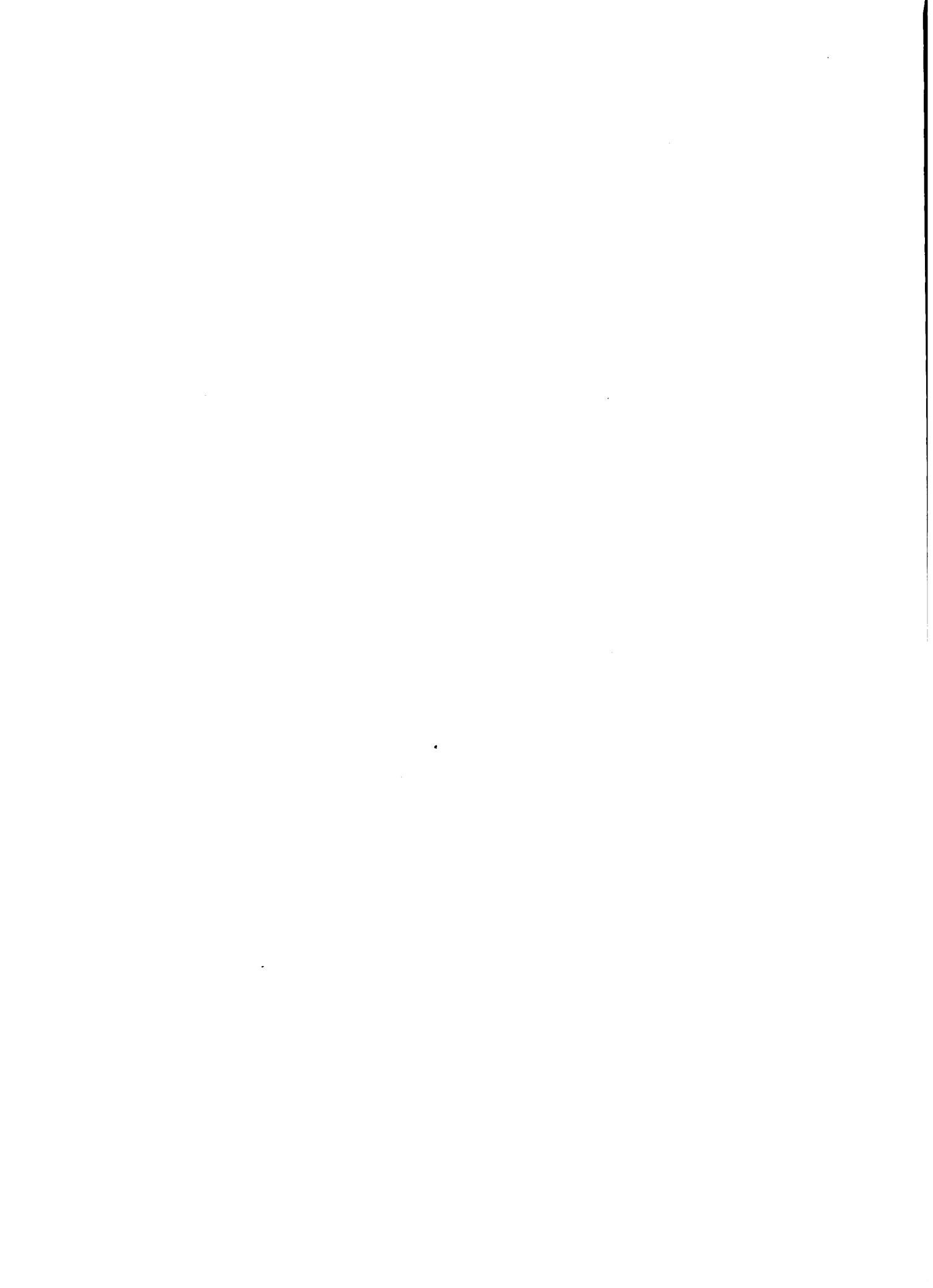


# TOPOGRAFIA DEL AREA DESTINADA AL CULTIVO DE CACAO

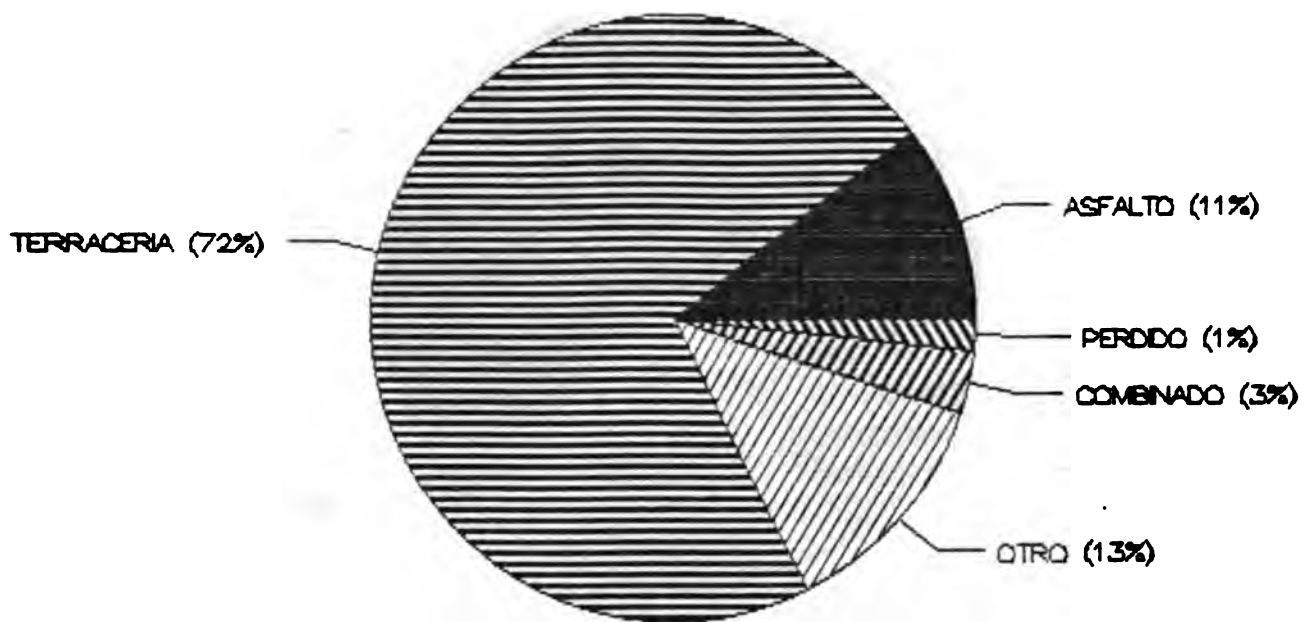


# TENENCIA DE LA TIERRA

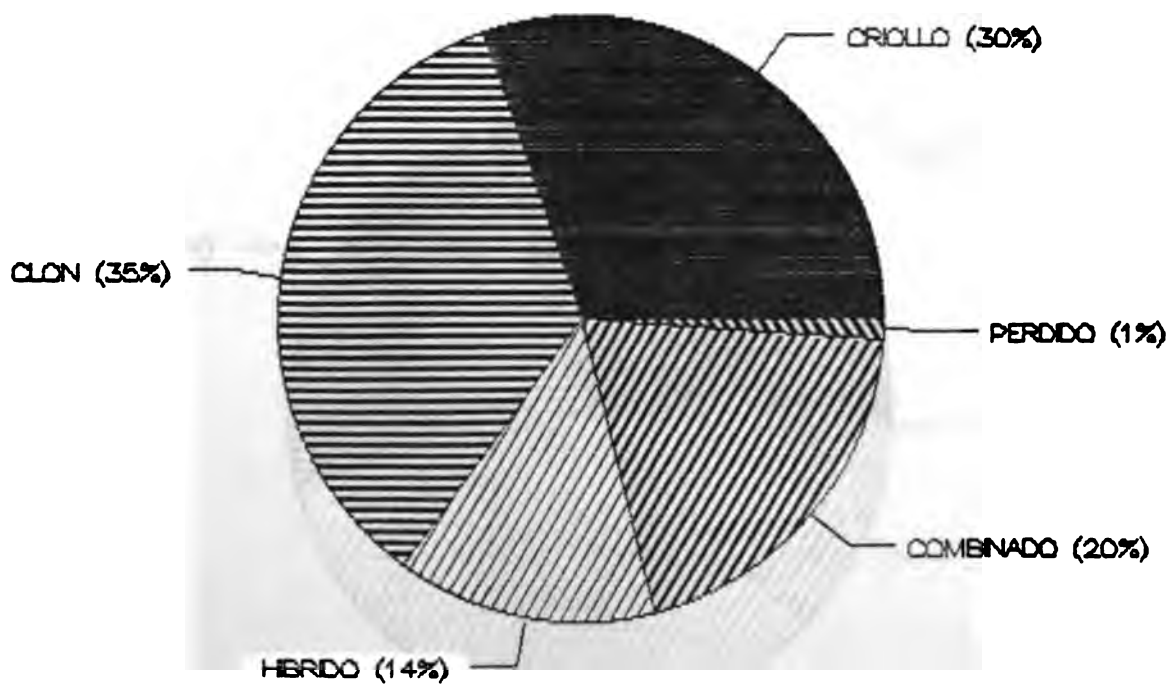


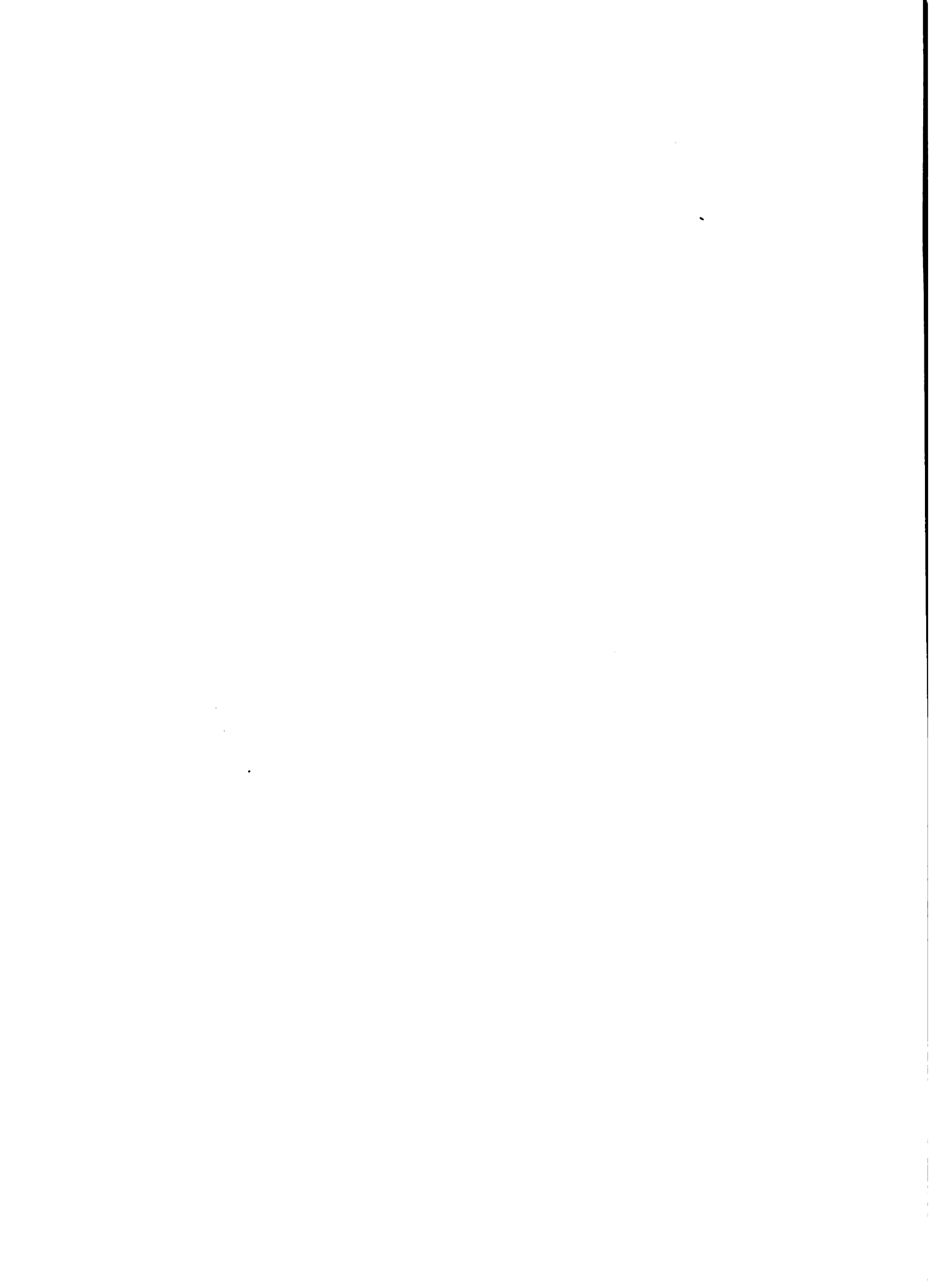


## VIAS DE ACCESO

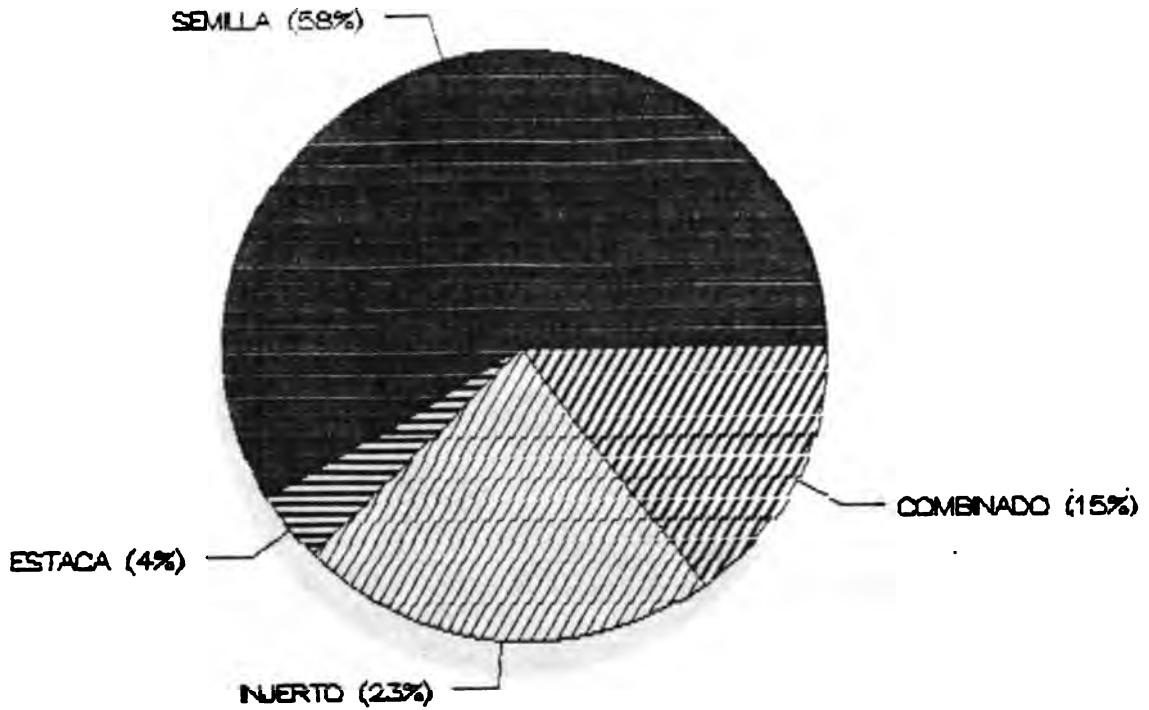


## MATERIALES DE CACAO EMPLEADOS

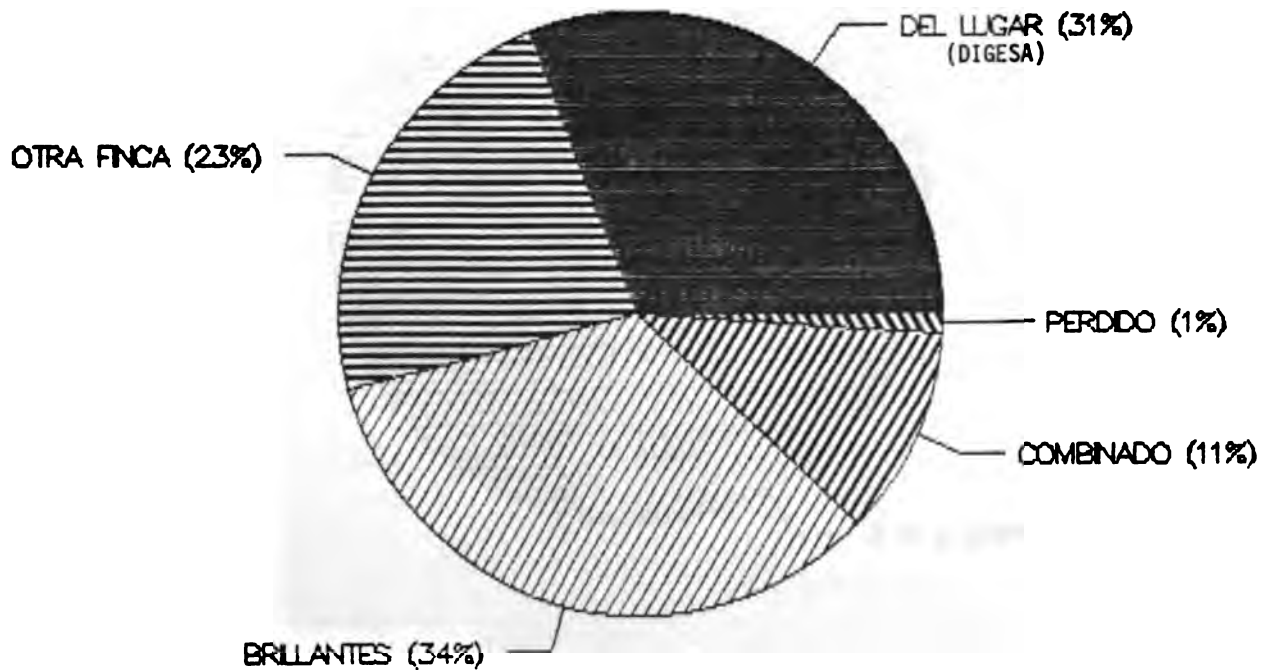


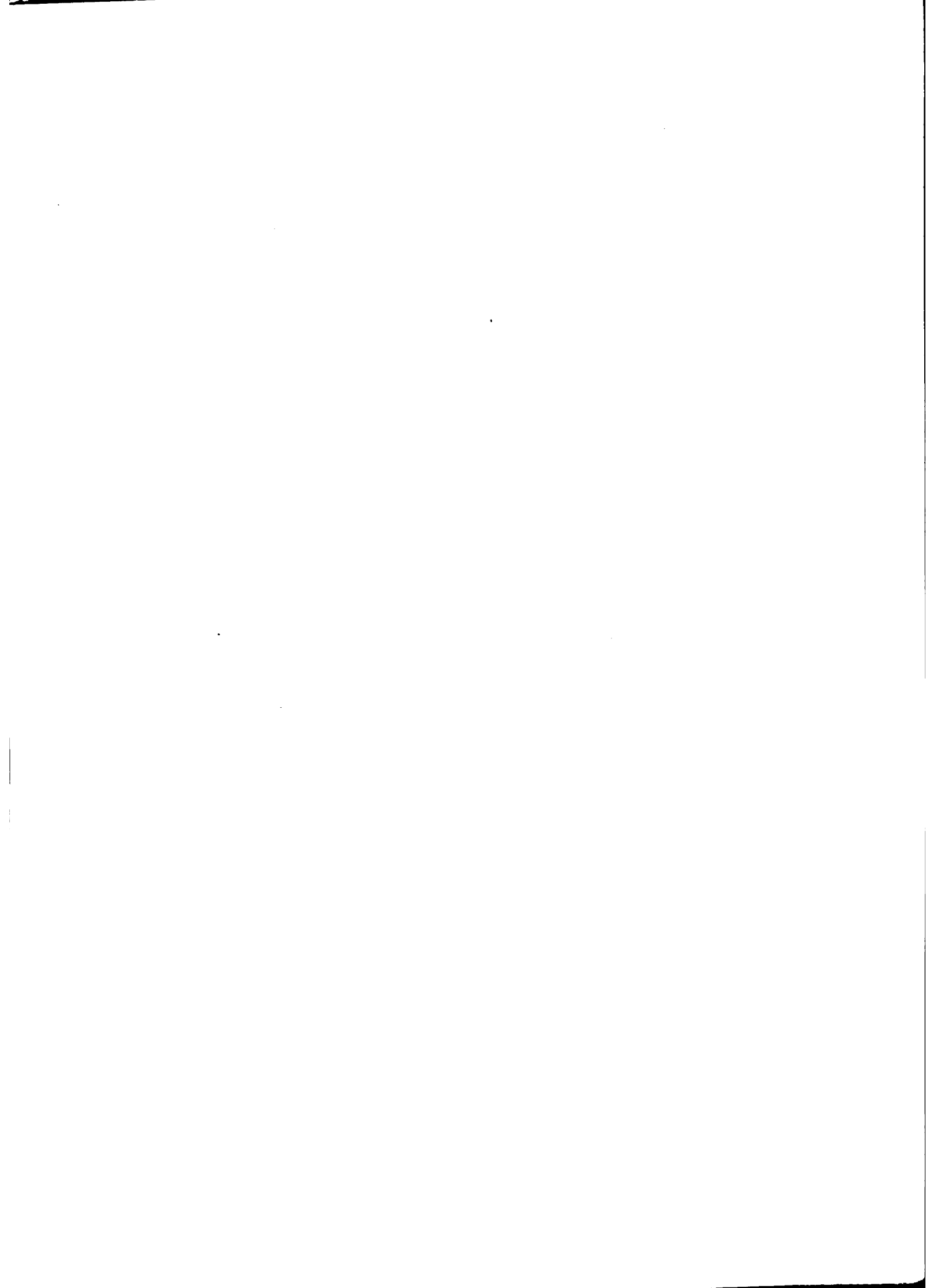


## FORMAS DE PROPAGACION

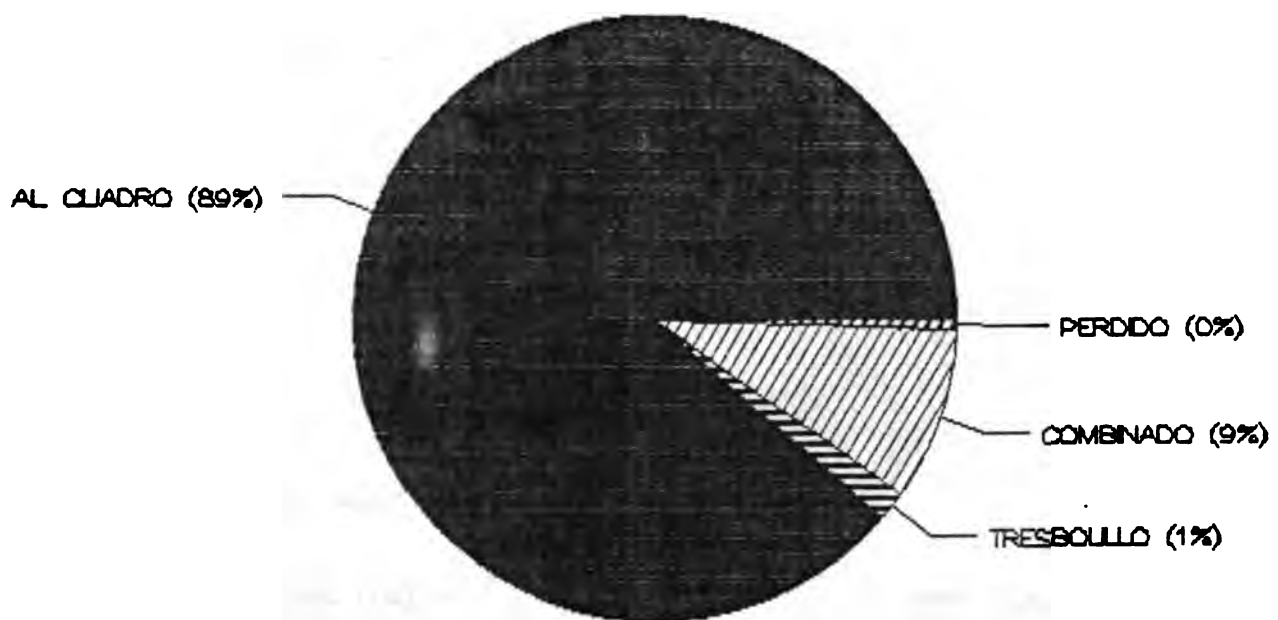


## LUGAR DE PROCEDENCIA DEL MATERIAL DE SIEMBRA

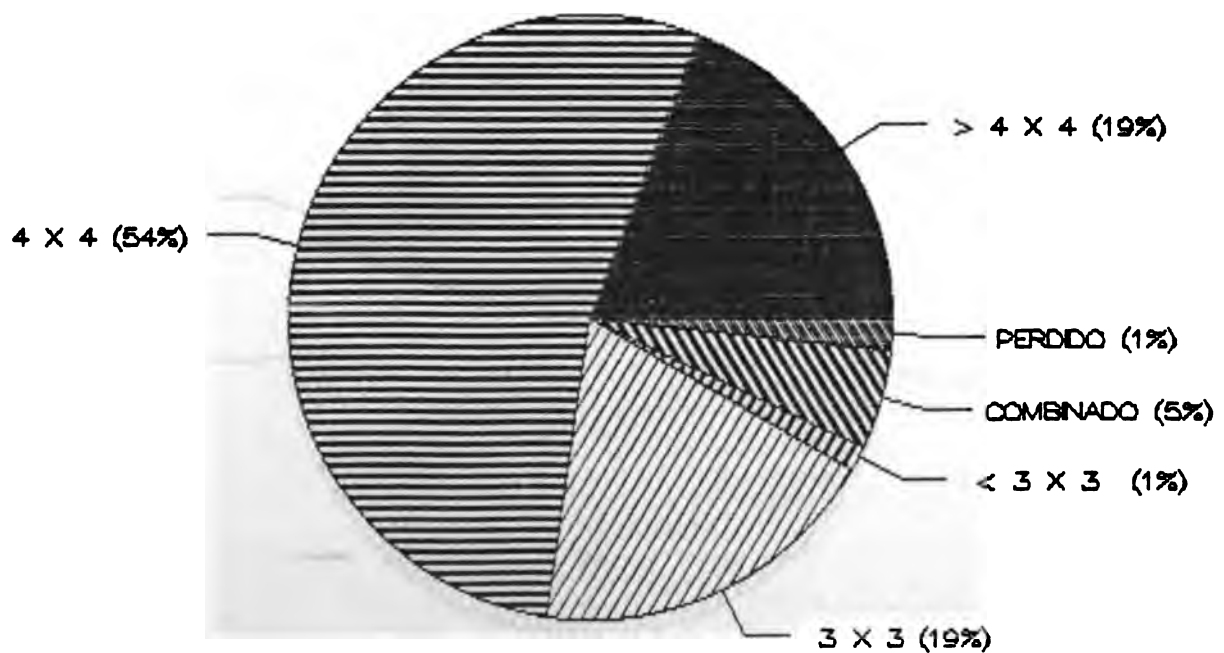


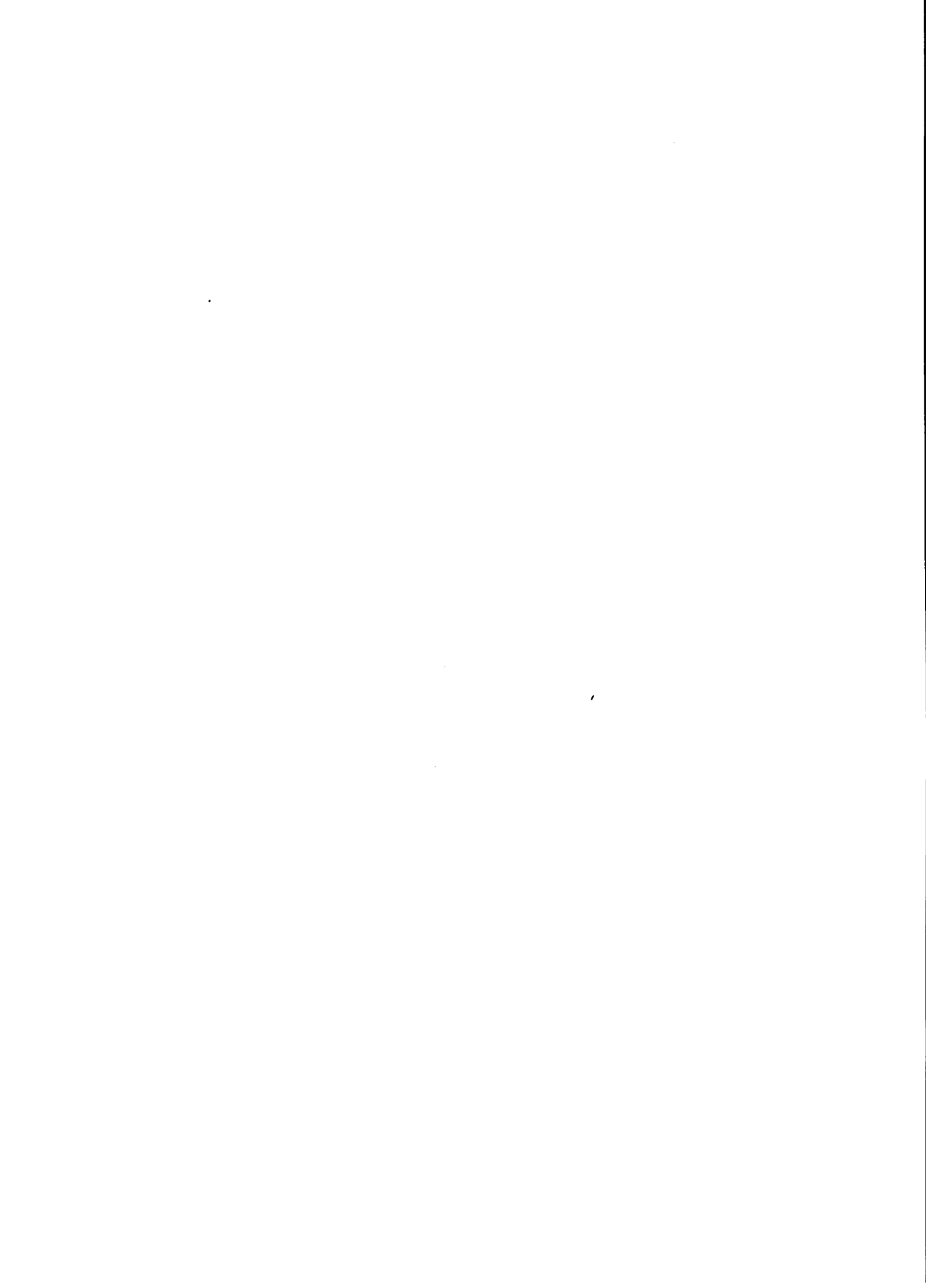


## SISTEMA DE SIEMBRA



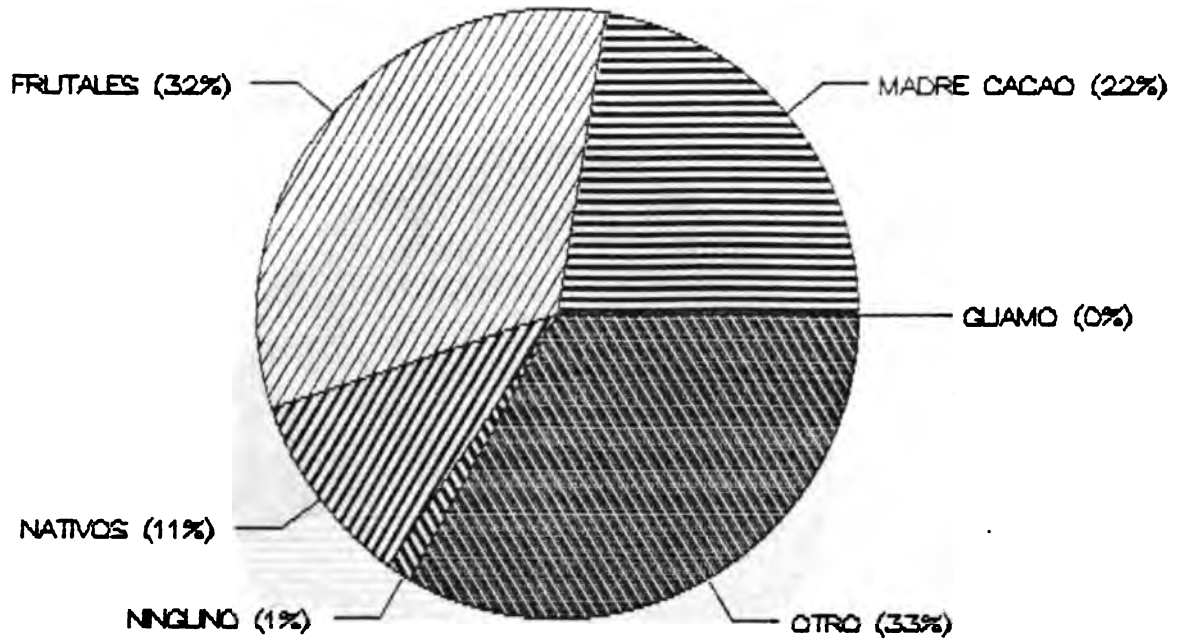
## DISTANCIAS DE SIEMBRA



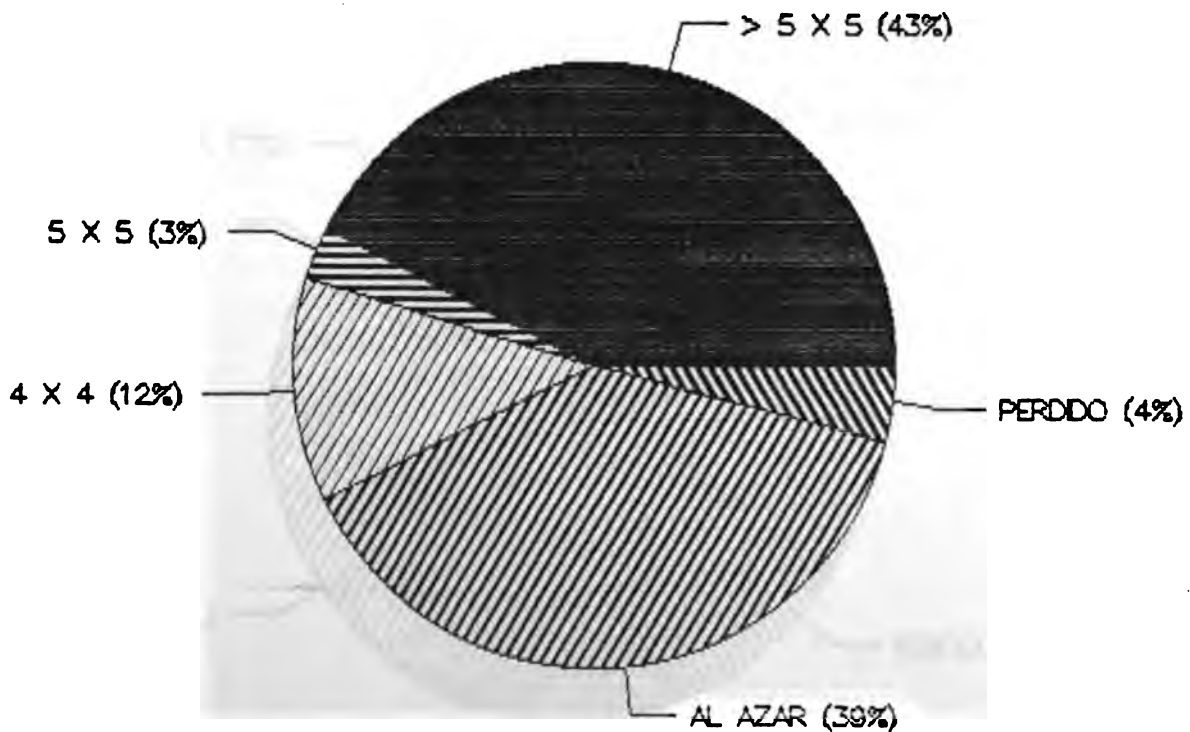




# ESPECIES USADAS PARA SOMBRA

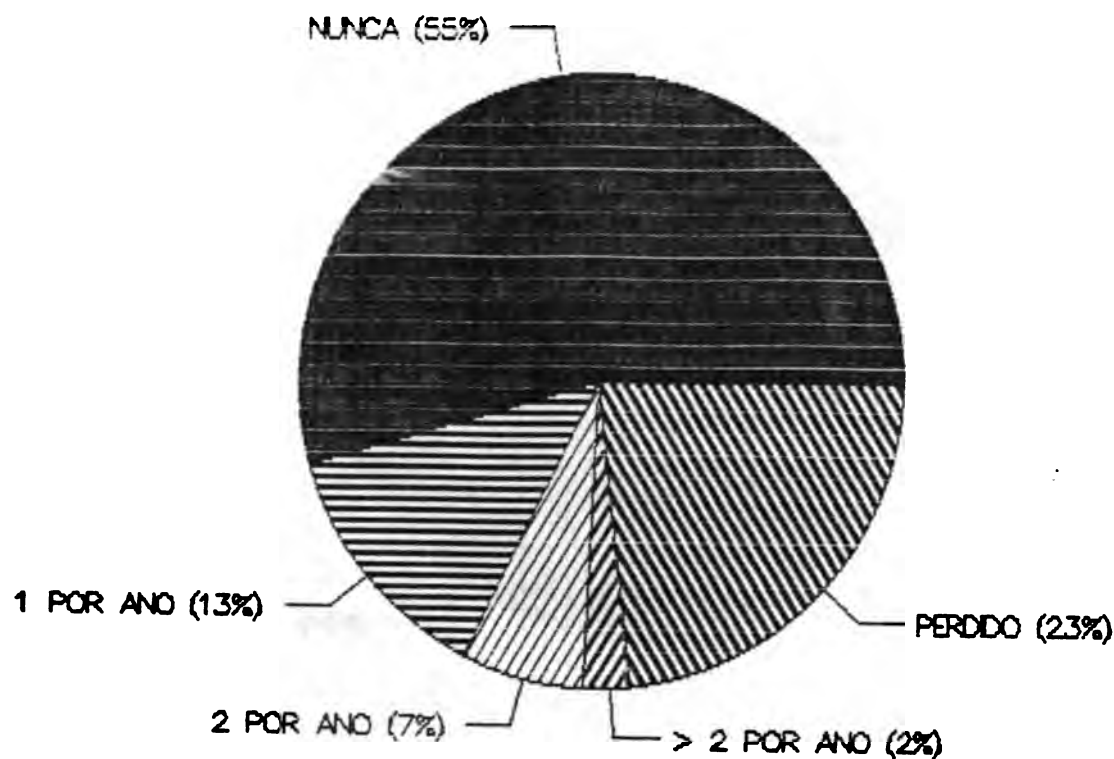


# DISTANCIAS EMPLEADAS PARA PLANTAS DE SOMBRA

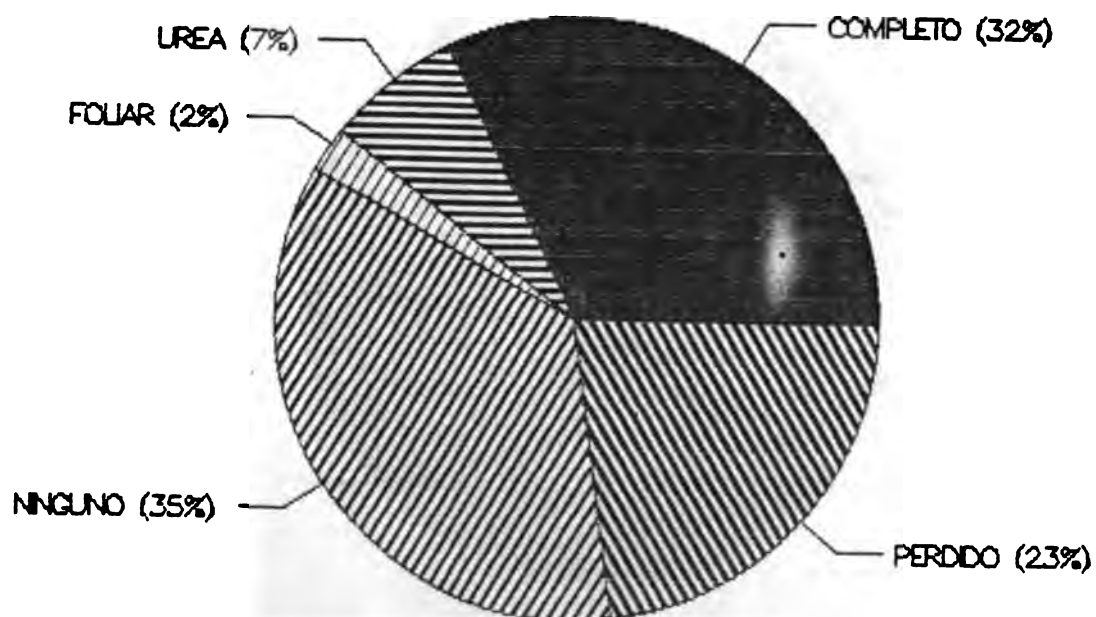




## NO. DE APLICACIONES DE FERTILIZANTE POR AÑO

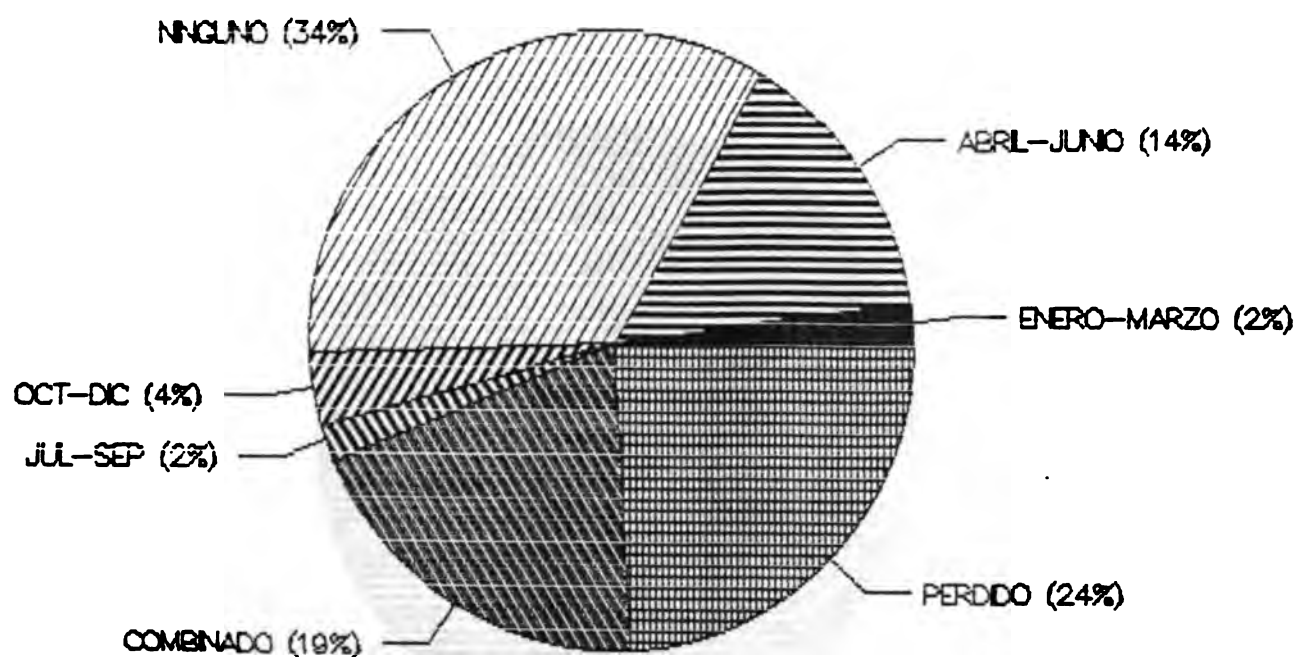


## TIPO O FORMULA DE FERTILIZANTE

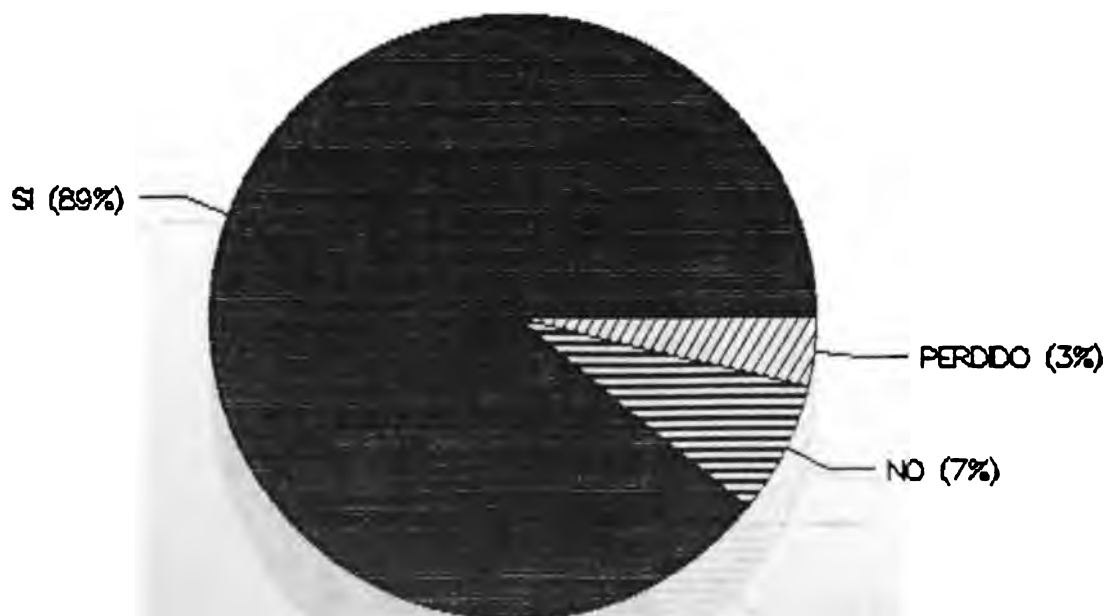


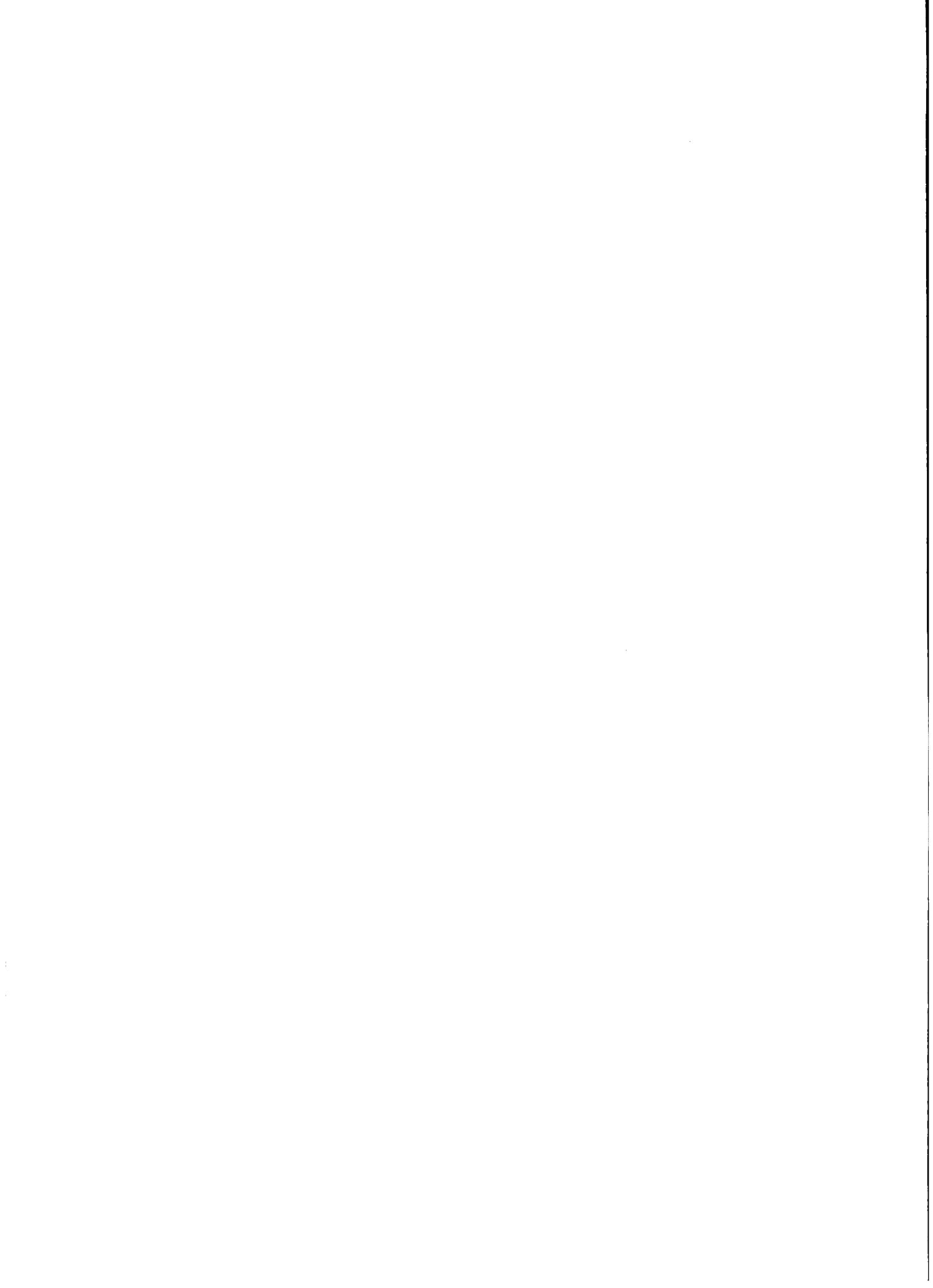


# EPOCA DE APLICACION DE FERTILIZANTES

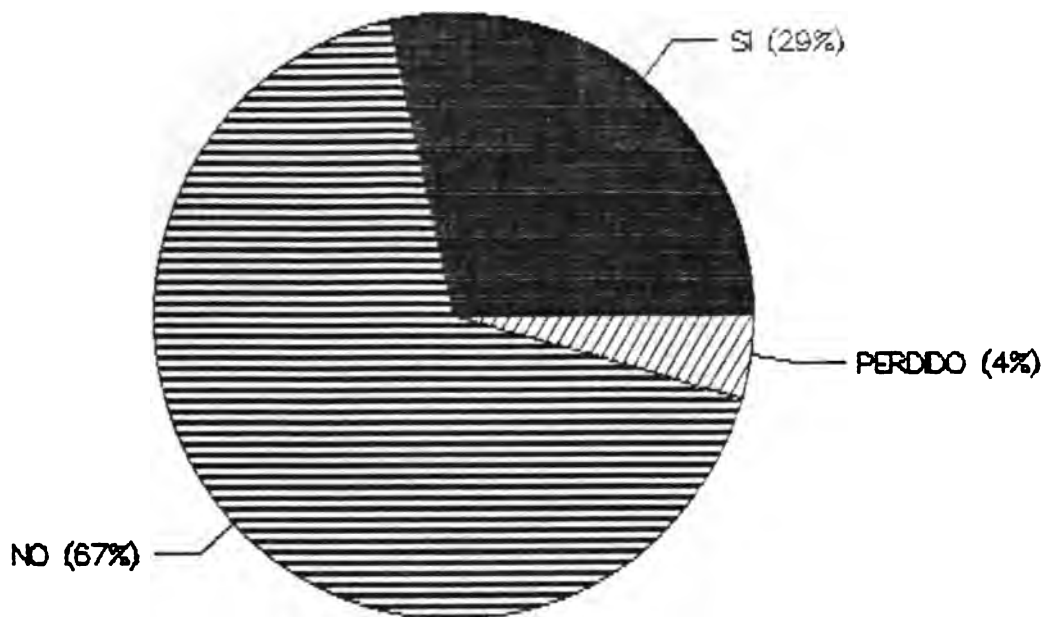


# PRESENCIA DE ENFERMEDADES

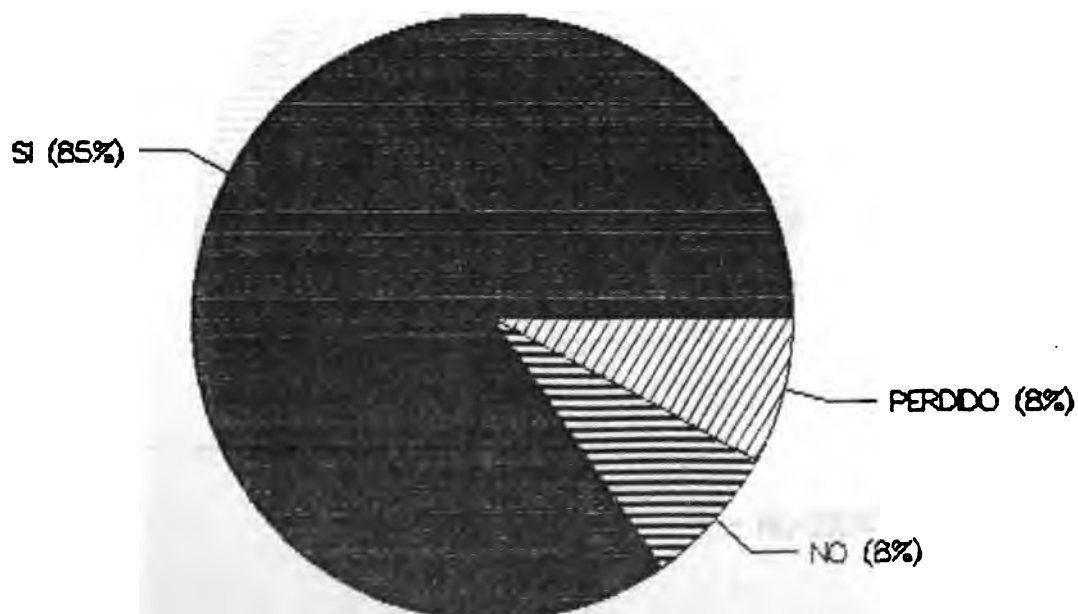


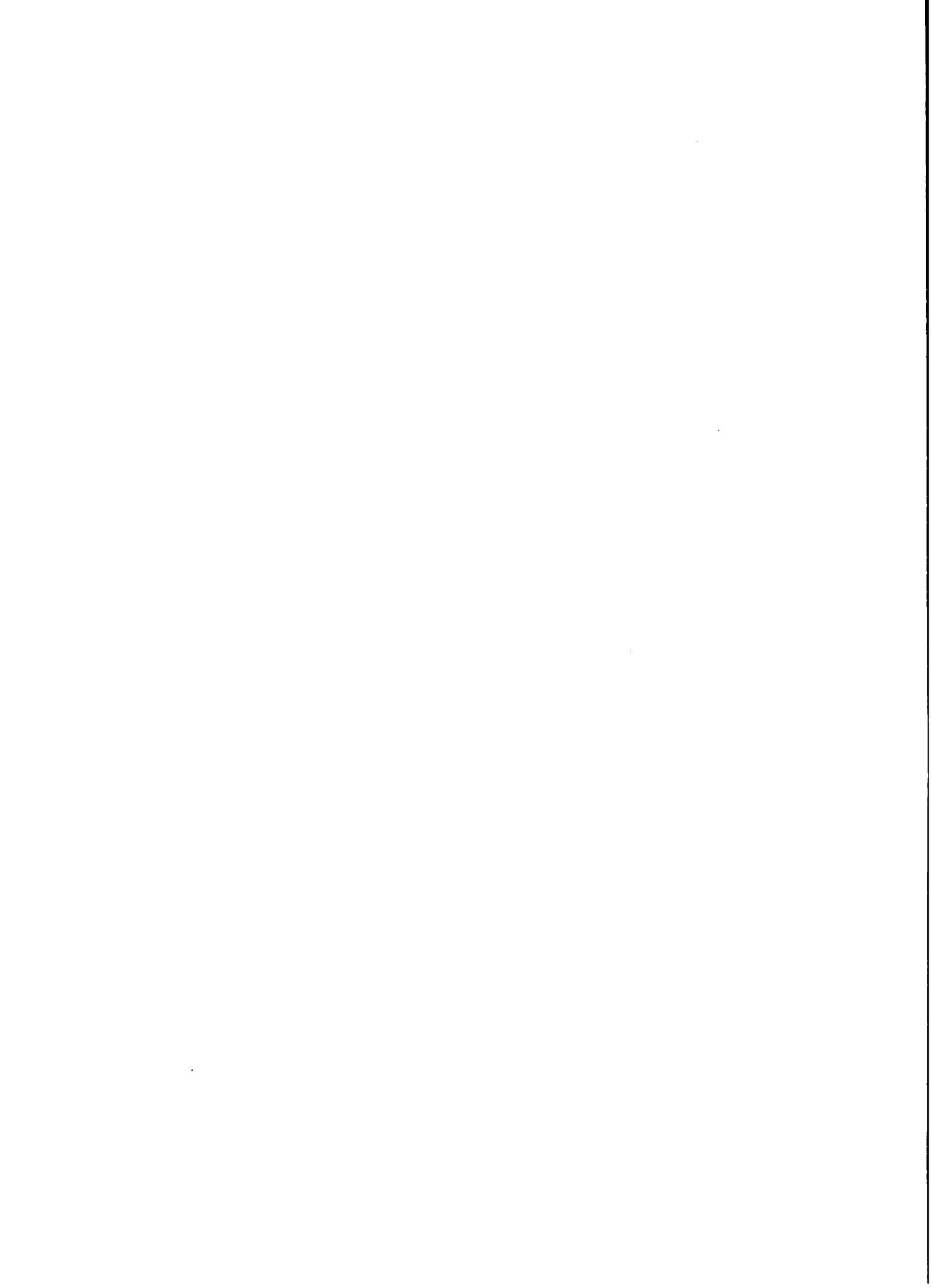


# APLICACIONES DE QUIMICOS CONTRA ENFERMEDADES



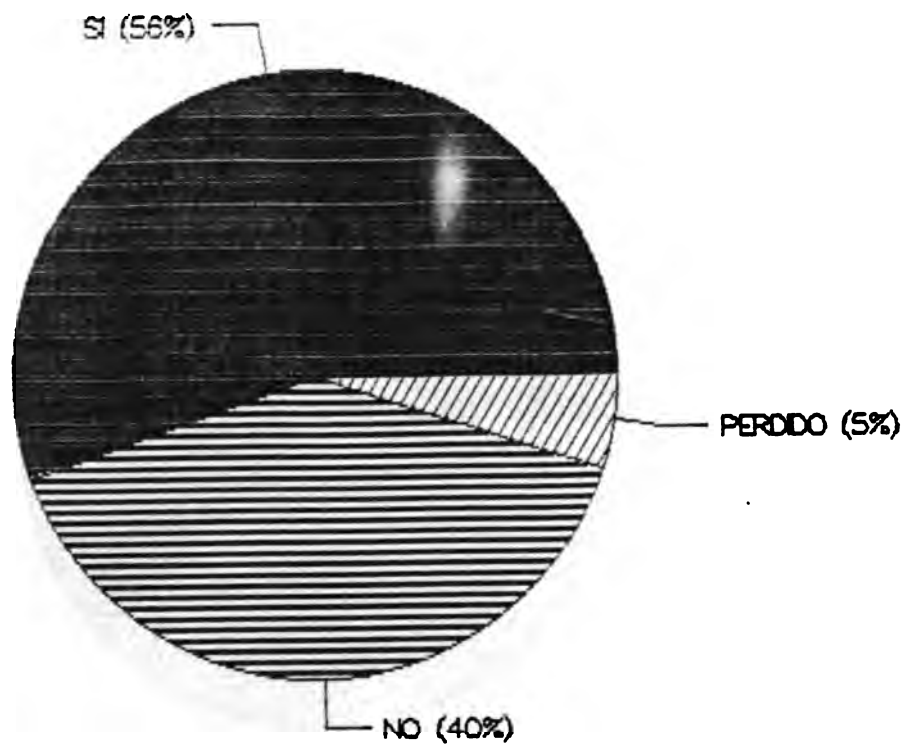
# PRESENCIA DE PLAGAS



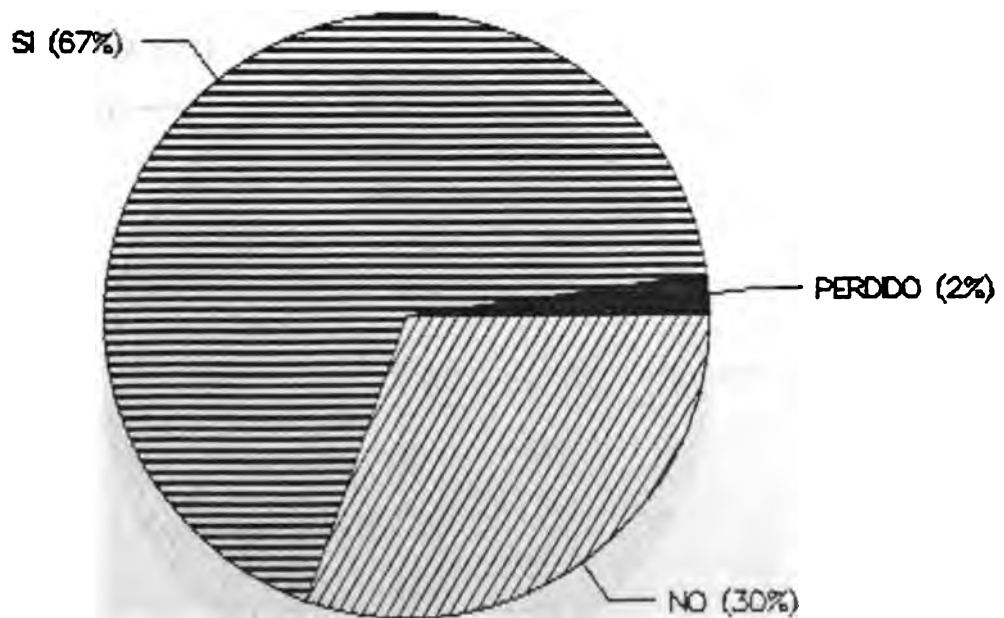


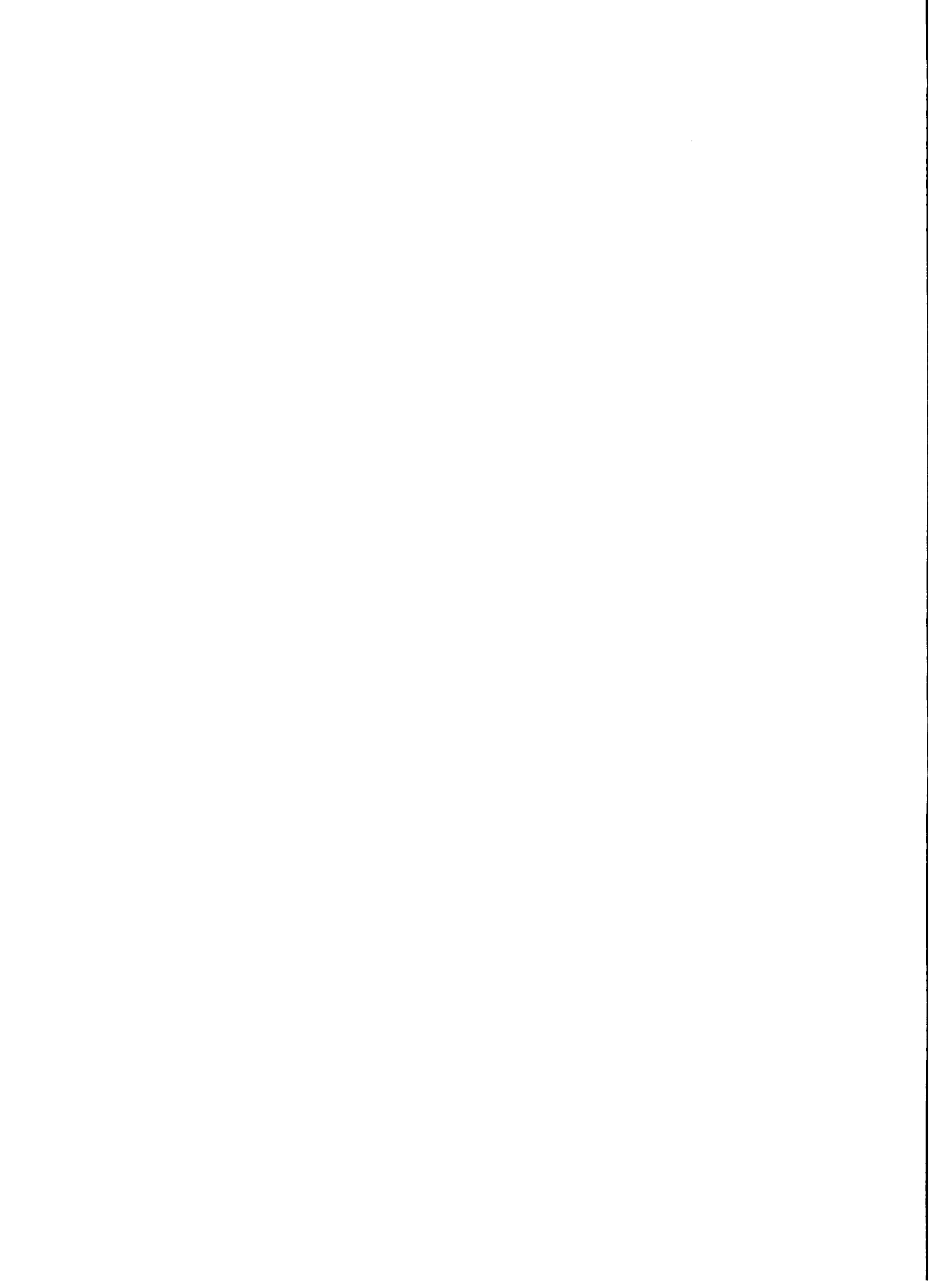


# PODA DEL CACAO

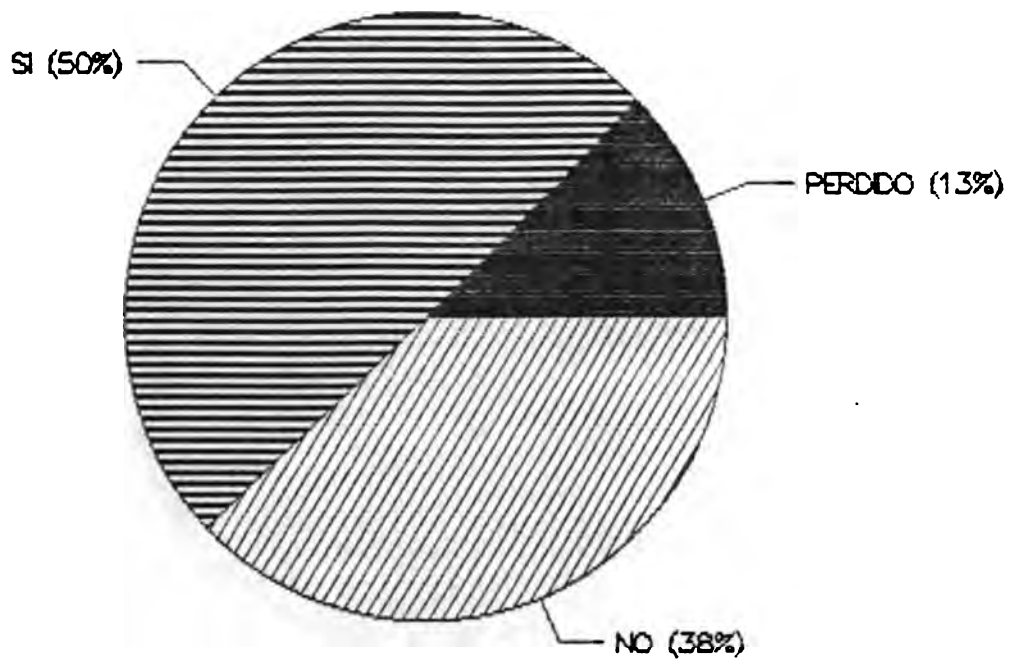


# DESHIJE DEL CACAO

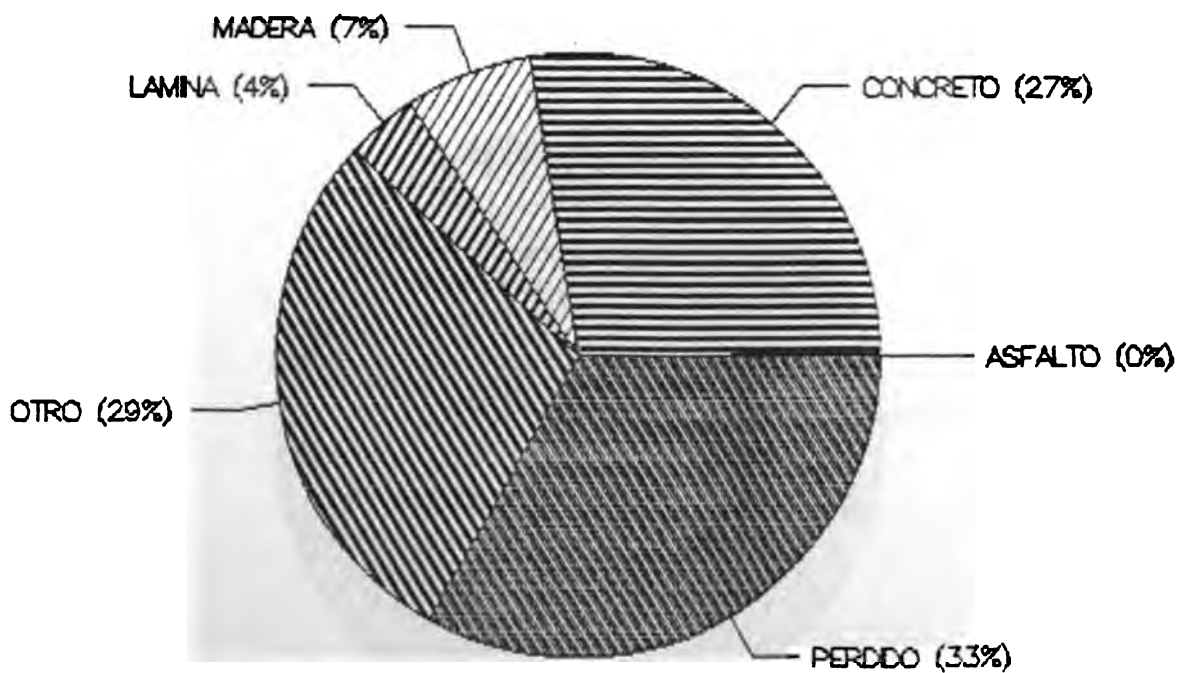




# FERMENTACION DEL CACAO

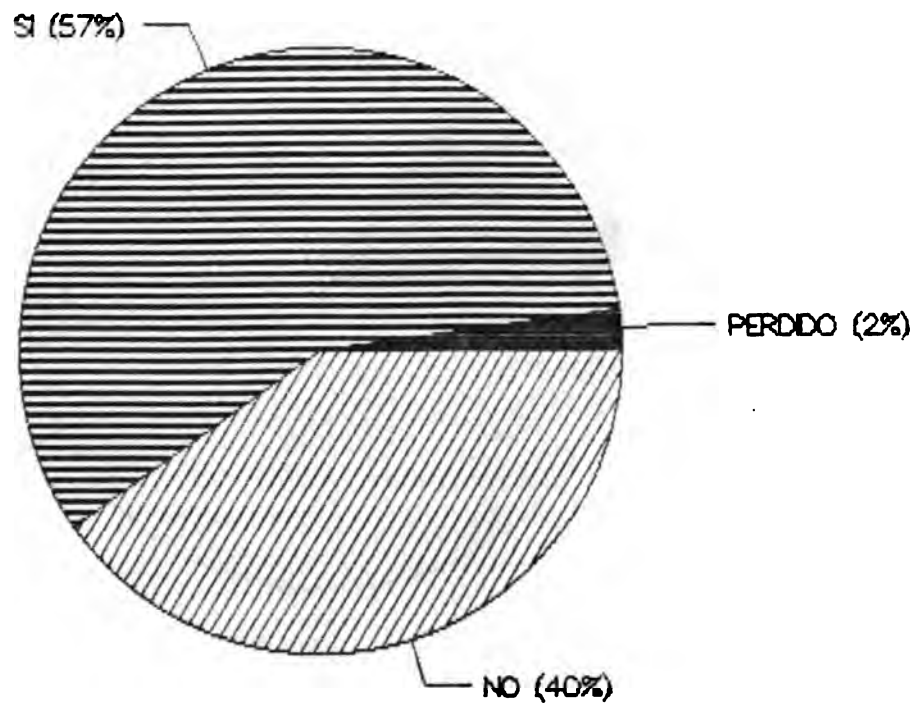


# TECNICA DE SECADO

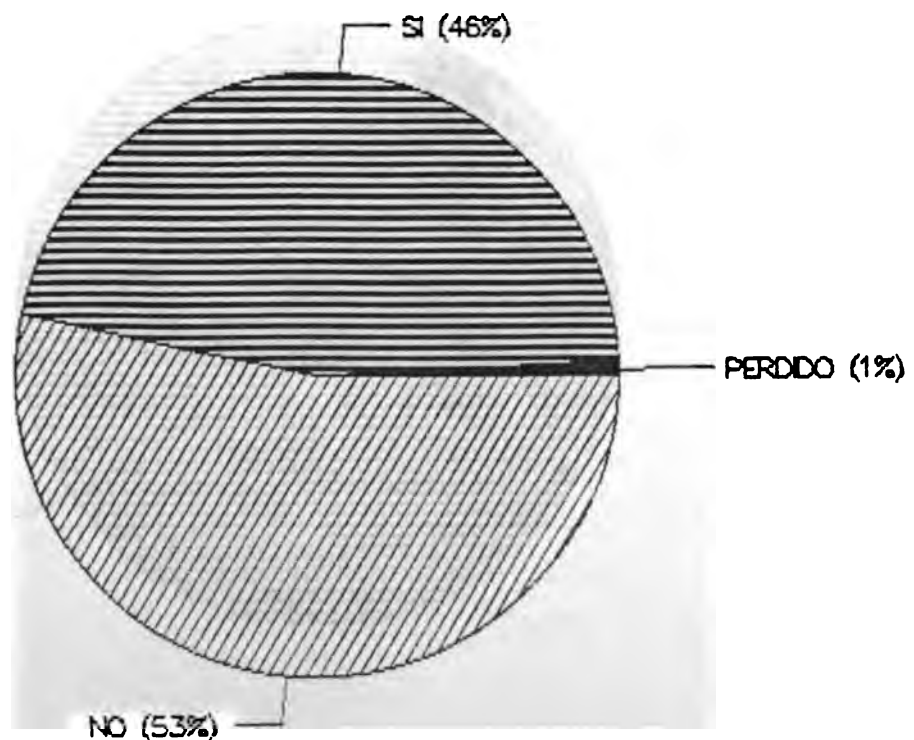


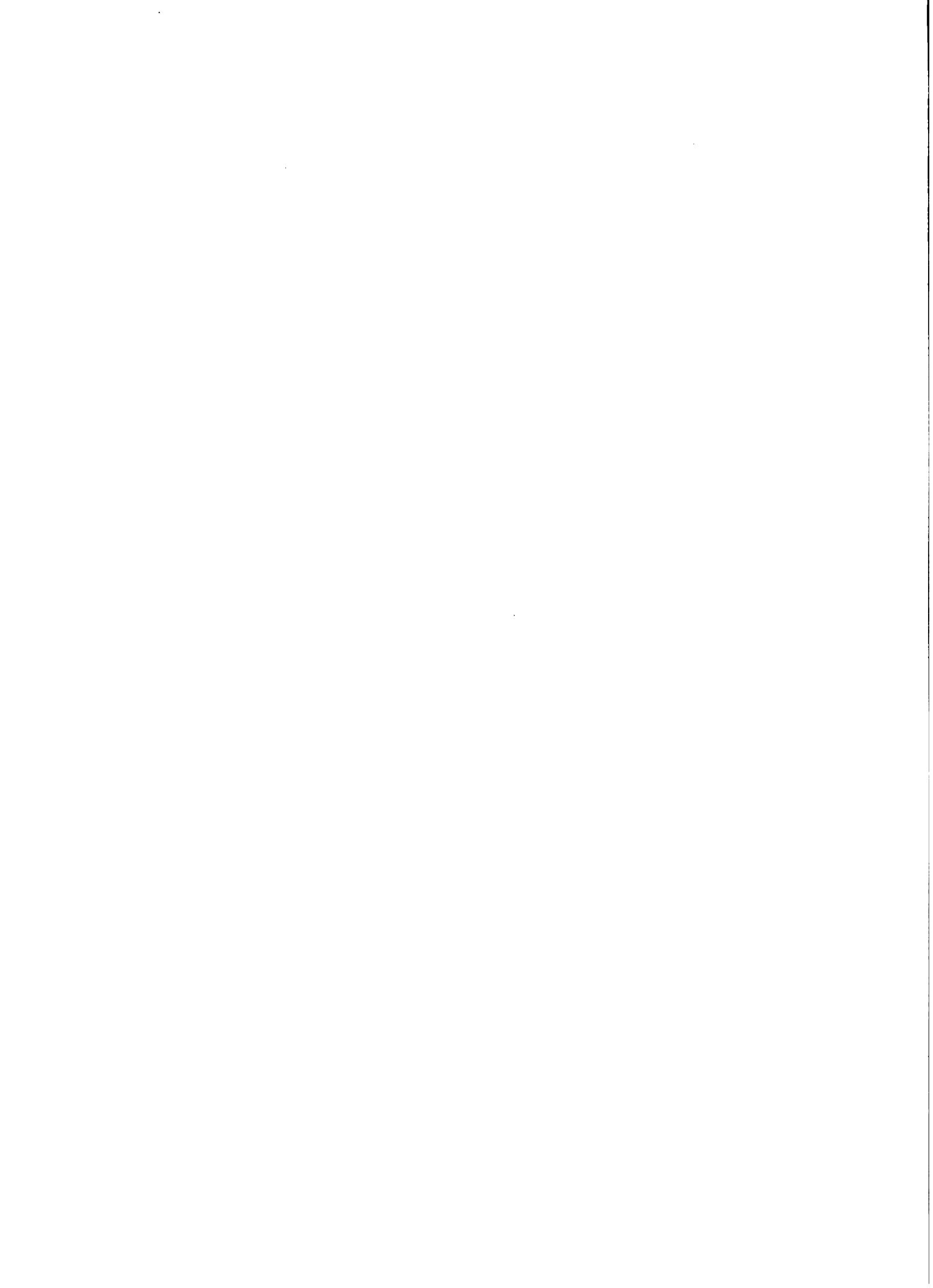


# INTERES EN AUMENTAR AREAS DE SIEMBRA

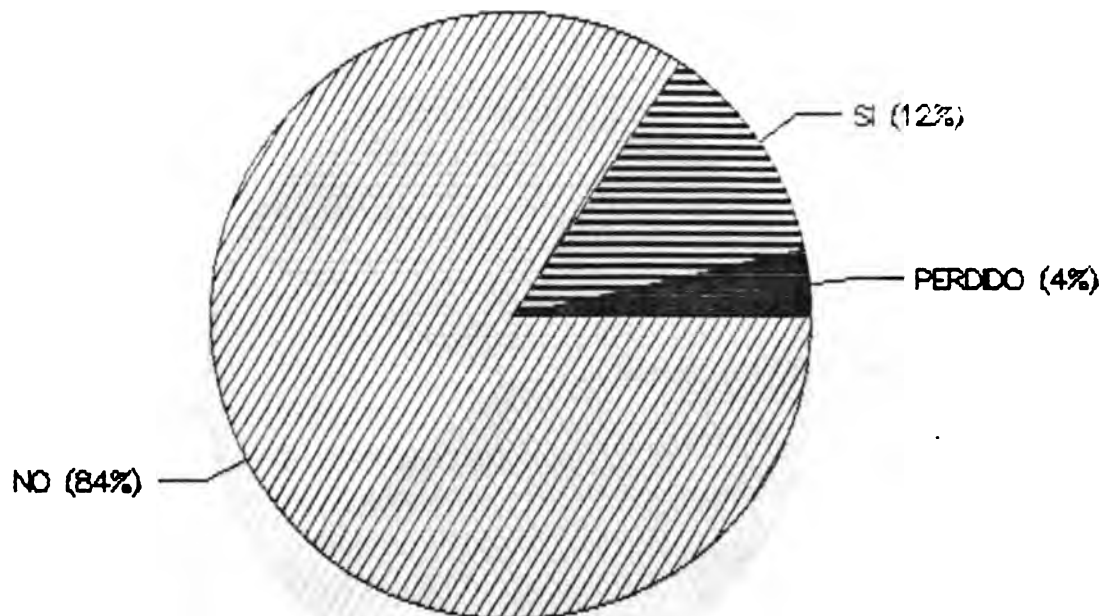


# ASISTENCIA TECNICA

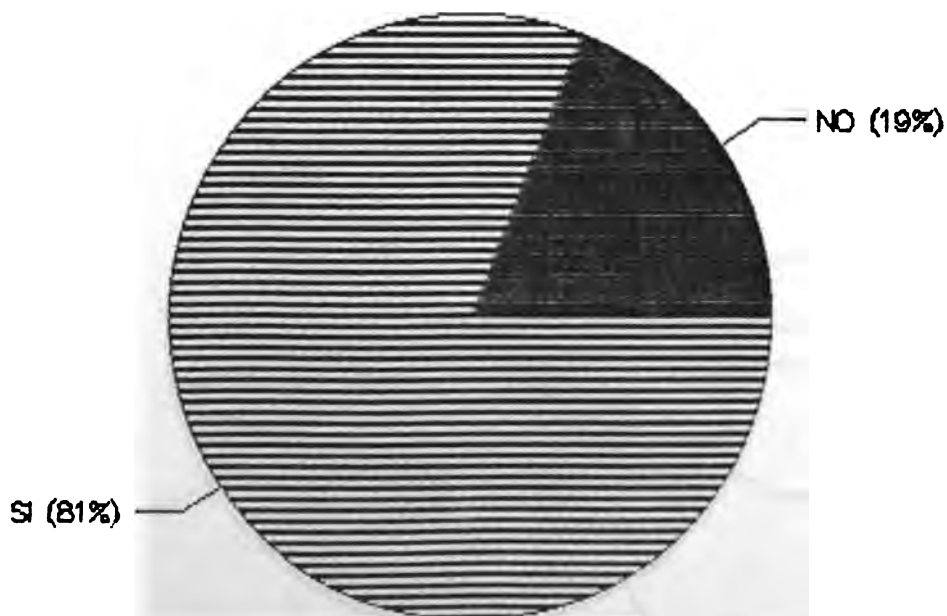


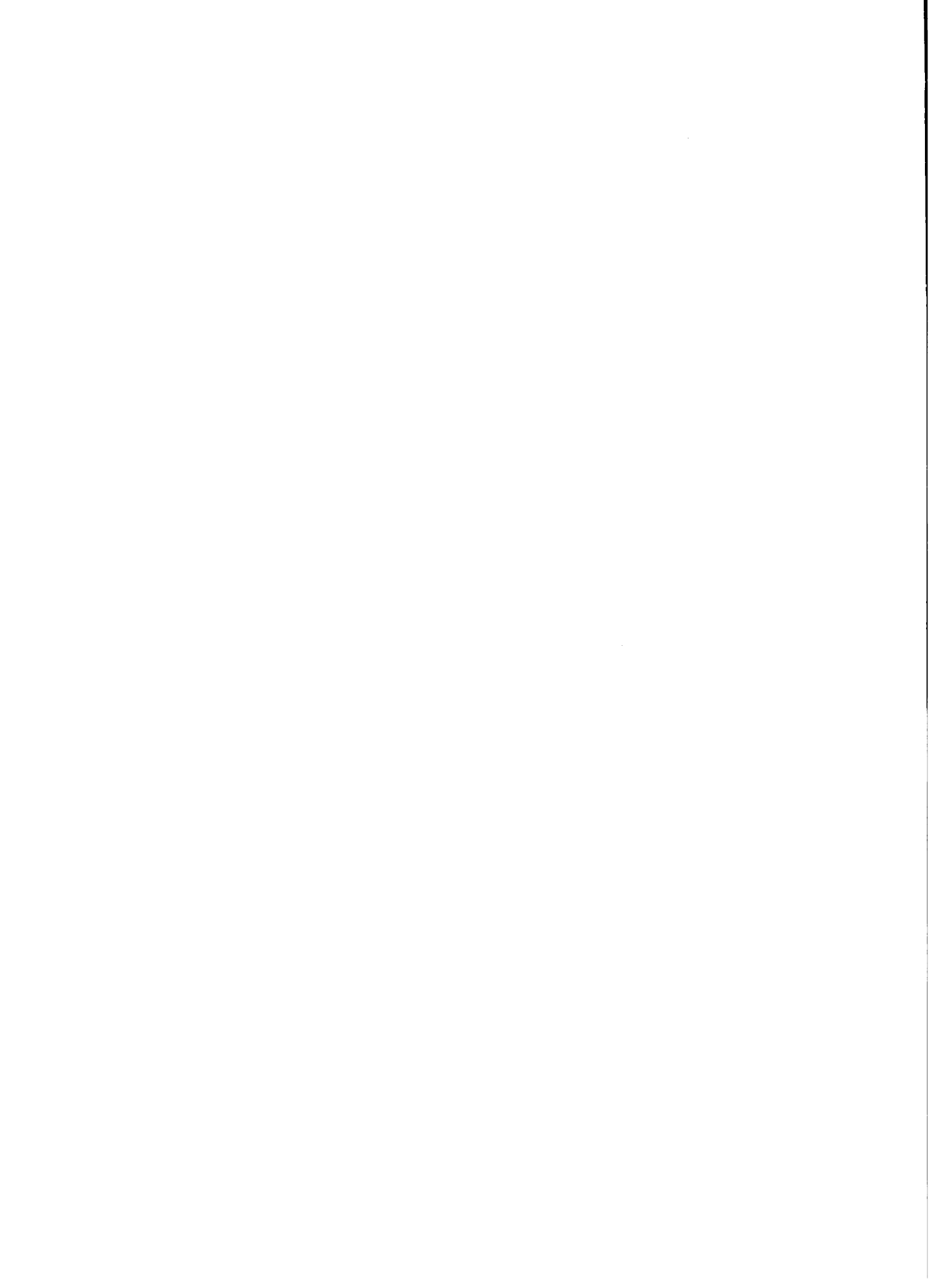


## ASISTENCIA CREDITICIA



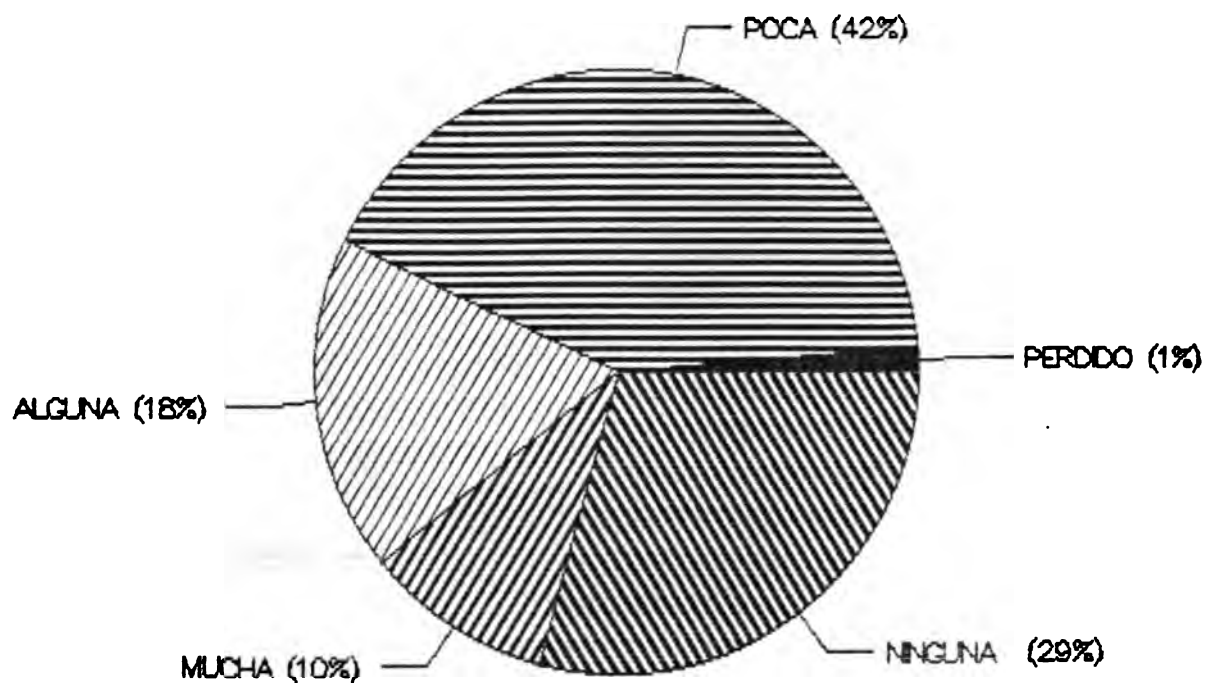
## ES LA ACTIVIDAD AGRICOLA LA PRINCIPAL



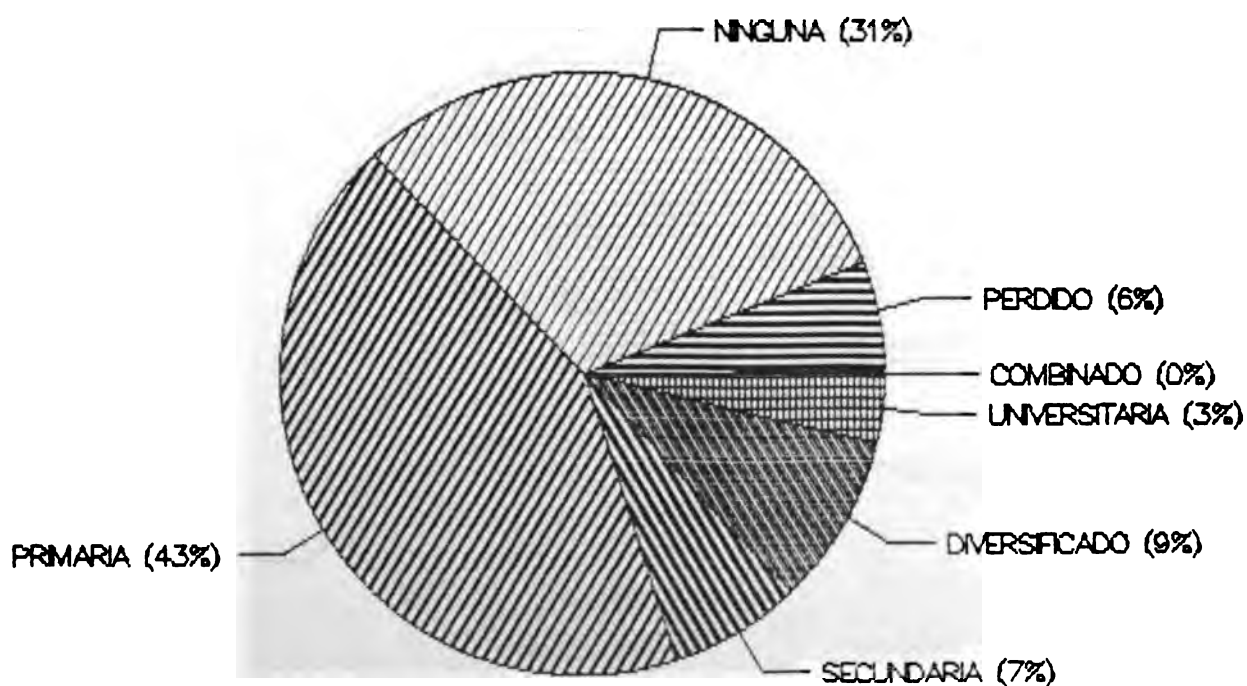


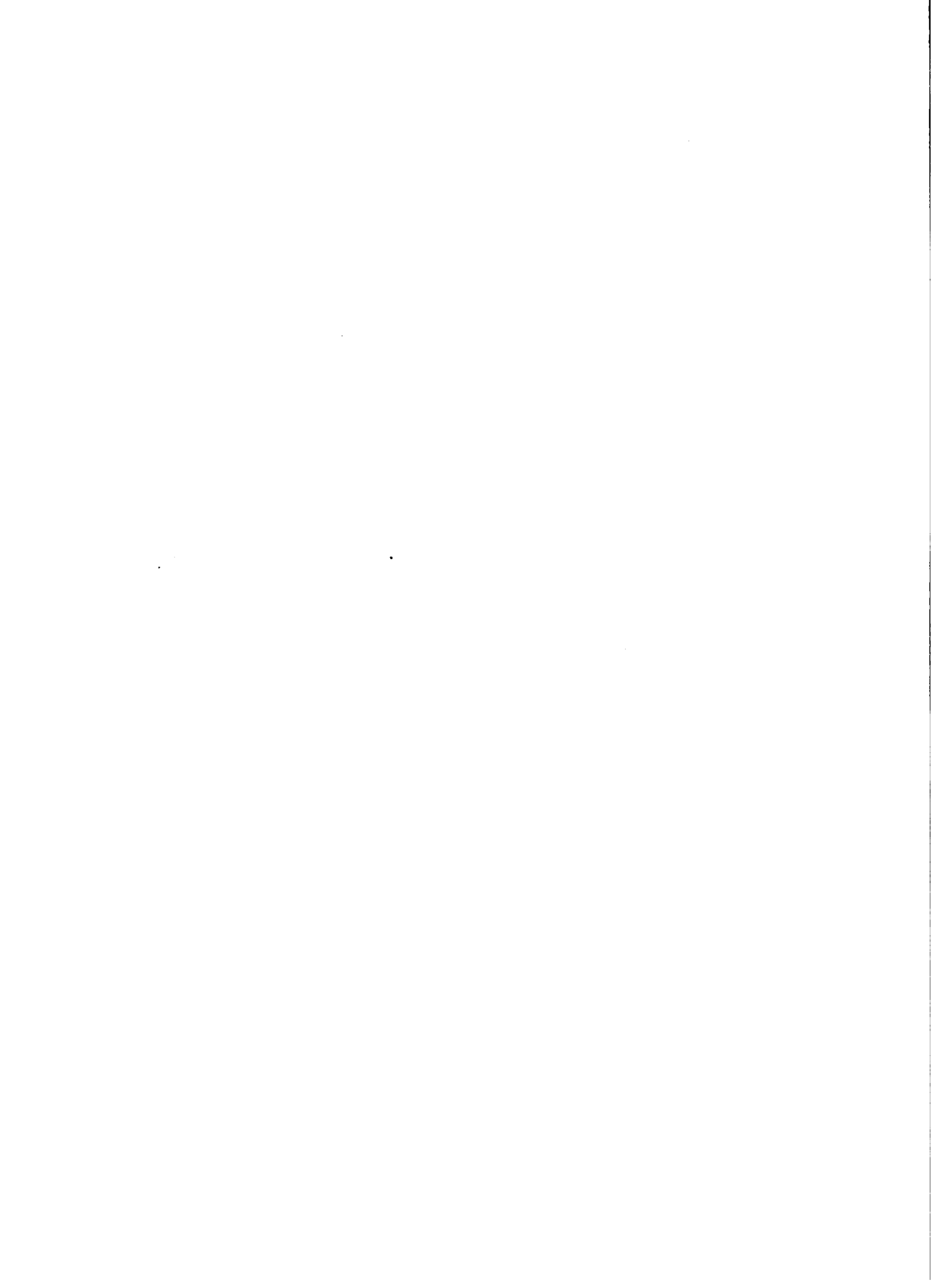


# IMPORTANCIA DEL CACAO EN EL INGRESO FAMILIAR

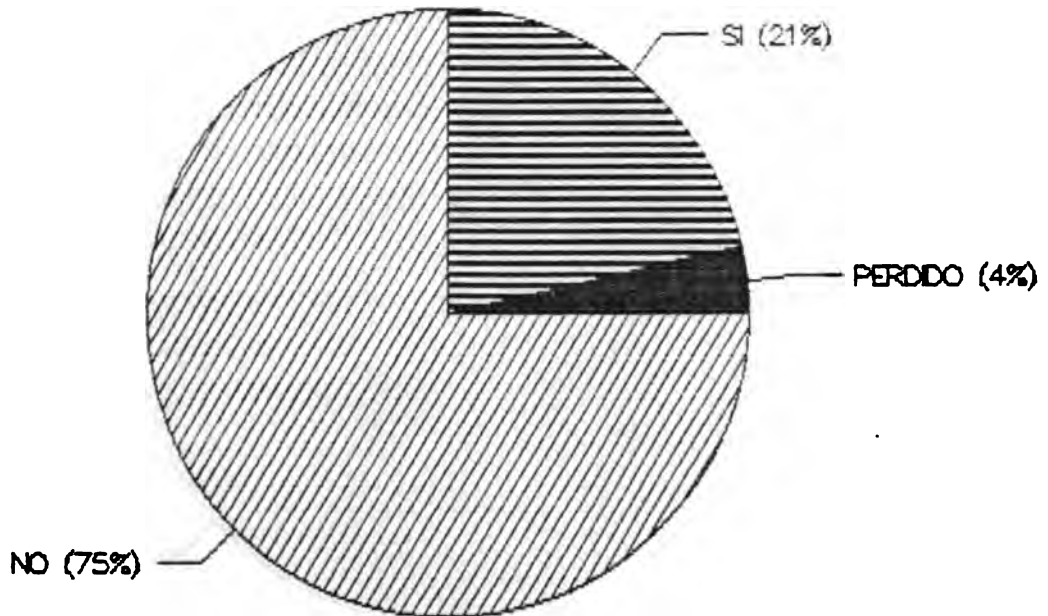


# GRADO DE ESCOLARIDAD

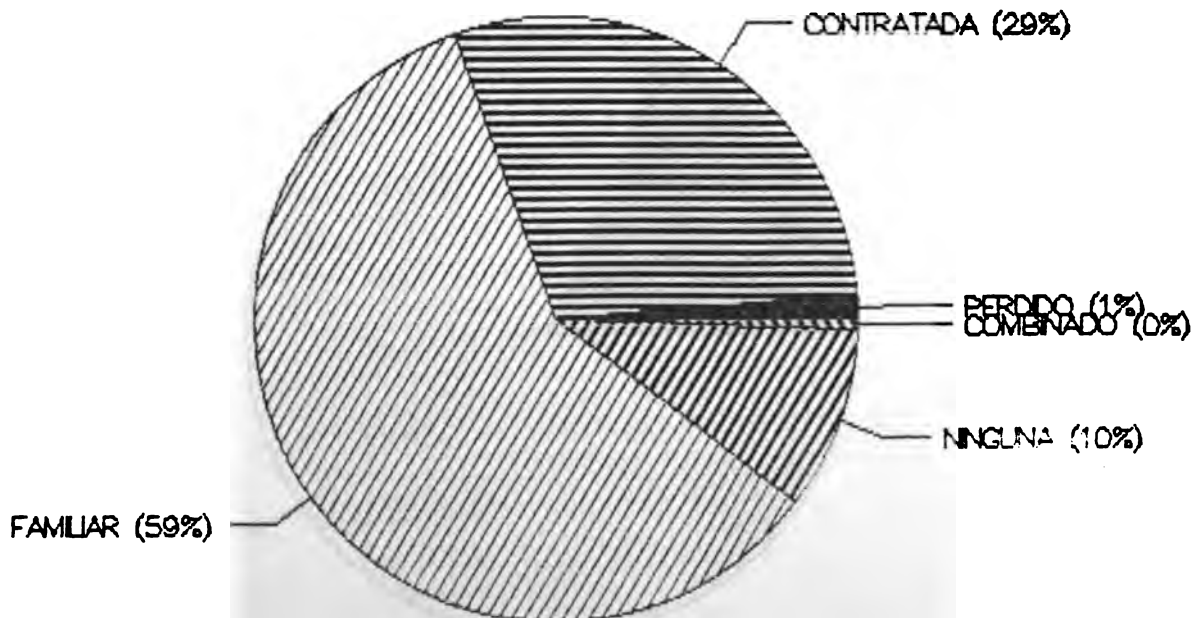




# PROBLEMAS DE MANO DE OBRA

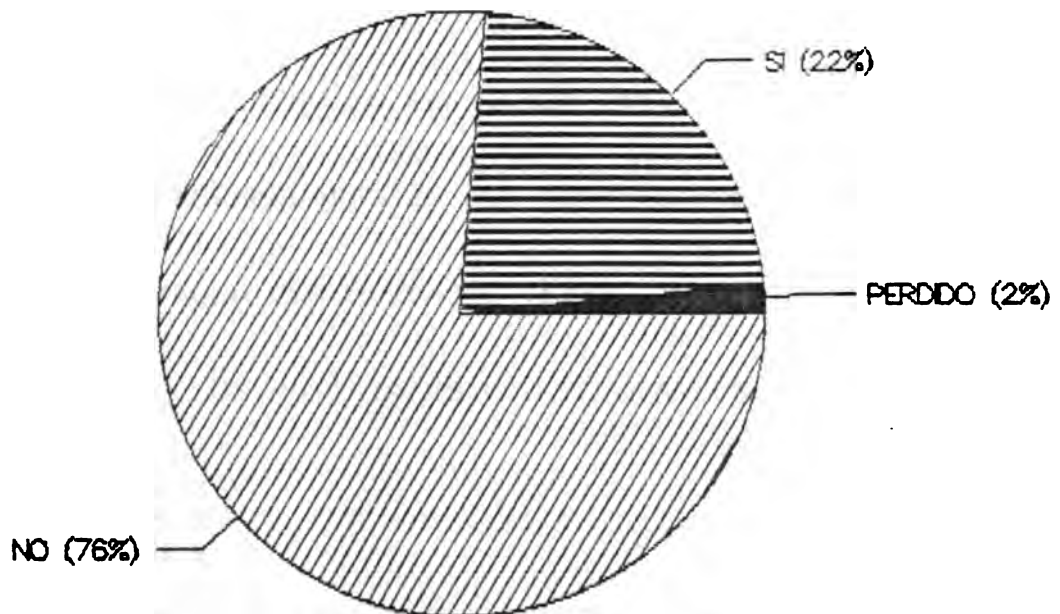


## TIPO DE MANO DE OBRA UTILIZADA

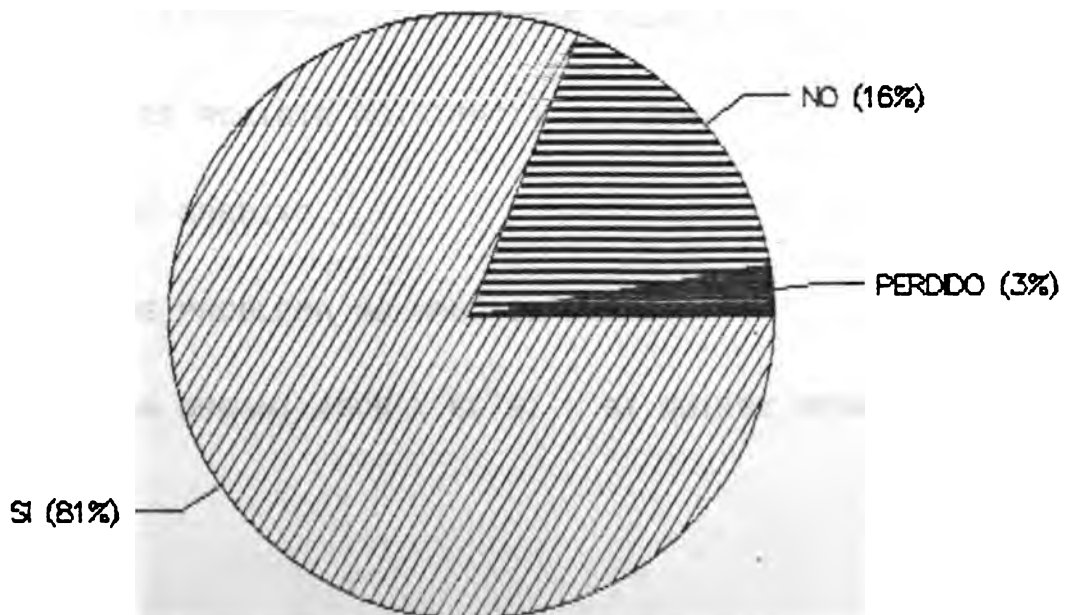




# PERTENECE A ALGUNA ORGANIZACION



# LE GUSTARIA PERTENECER A ALGUNA ORGANIZACION





**CONCLUSIONES:**

- 1) EL CULTIVO DEL CACAO, NO ES LA ACTIVIDAD ECONOMICA PRINCIPAL.
- 2) LA MAYORIA DE AGRICULTORES NO FERTILIZA (55%)
- 3) LA MAYORIA TIENE ENFERMEDADES EN SUS PLANTACIONES (89%)
- 4) LA MAYORIA NO CONTROLA ENFERMEDADES (67%)
- 5) LA DISTRIBUCION DE LOS MATERIALES QUE SE USAN ES LA SIGUIENTE:  
  
    CRIOLLO = 30 %  
    CLONES = 35 %  
    HIBRIDOS = 14 %
- 6) LA MAYORIA TIENE PLAGAS EN SUS PLANTACIONES (85 %)
- 7) EL 51 % EFECTUA PODAS Y EL 67 % EFECTUA DESHIJES.
- 8) EL 50 % FERMENTA EL CACAO.
- 9) SOLO EL 10 % CONSIDERA AL CACAO COMO DE MUCHA IMPORTANCIA PARA EL INGRESO FAMILIAR.
- 10) EL 57 % SI ESTA INTERESADO EN AUMENTAR AREAS DE CULTIVO
- 11) SOLO EL 46 % DICE RECIBIR ASISTENCIA TECNICA.
- 12) EL 84 % NO TIENE CREDITO.
- 13) EL 75 % NO TIENE PROBLEMA DE MANO DE OBRA.
- 14) EL 76 % NO ESTAN ORGANIZADOS Y EL 81 % SI QUIERE ORGANIZARSE.

