



“ 11 5 TMR “
 (, , , /) . ”

1. 1
- 2.

2001 125 ha, 2002 132 가 . 2000 2001 60
 ha . 4,000 가 , 2002 2003
 1,200 ~ 1,300 60 ,
 30 ~ 35% , 2,000 .
 5560% 가
 가 가 kg 190 ~ 200 가
 (:)

	(A)					(B)	(A + B)	(%)
1990	3,457	594	2,238	2,615	60	5,507	8,964	61.4
1997	6,453	413	583	2,184	256	3,436	9,889	34.7
1998	5,438	392	874	2,188	172	3,626	9,064	40.0
1999	5,655	376	794	2,203	342	3,715	9,370	39.6
2000	5,231	364	628	1,801	599	3,392	8,623	39.3
2001	4,530	352	786	2,146	597	3,881	8,411	46.1
2002	4,517	350	852	2,000	643	3,845	8,362	46.0
2003	4,670	343	906	2,150	655	4,054	8,724	46.5

) (2004)

310~410 , 가 ,
 273~350 , 210~265 가

3. 가 ,가 가 가

가. 가 , 가 , 가

가 TDN , 가 , 가

(가), 가 가 가 가 가 가

가 가 가

4~20 , 1,000mm ()

1987	1990	1995	1996	1997	1998	1999	2000	2001	2002	2003
8	63	170	212	256	172	342	599	597	643	655

(2004)

가 가 (/kg)

350	410	365	310	273	350	265	210	190
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(2003. 3)

		(cm)		(kg/ha)			
	Koolgrazer	128	4. 27	7,433	9,969	13,370	10,258
		129	4. 29	7,590	9,684	12,809	10,028
		125	4. 29	8,025	10,895	13,067	10,663
		127		7,683	10,183	13,082	10,316
	Koolgrazer	143	4. 25	5,840	17,320	19,160	14,107
		140	4. 27	7,020	17,330	22,200	15,517
		138	4. 26	6,170	17,130	21,430	14,910
		140		6,343	17,260	20,930	14,844
	Koolgrazer	150	4. 20	6,370	13,740	15,260	11,790
		153	4. 24	7,330	14,070	15,030	12,140
		141	4. 21	6,680	13,110	14,550	11,450
		148		6,790	13,640	14,950	11,790

) (1999 ~ 2001)

		8,271	9,982	11,666	9,973
		7,178	9,424	10,607	9,070
		7,196	9,018	10,622	8,946
	92	7,340	12,730	14,150	11,407
		6,910	11,260	14,250	10,807
		7,010	12,320	13,530	10,953
		7,050	11,160	13,690	10,633
		7,640	11,040	12,210	10,300
		7,800	10,660	12,470	10,310
		8,620	11,140	11,510	10,420
		7,910	11,570	11,410	10,300

) (1999 ~ 2001)

(101)

가가 .

가 ,

.

가 ,

, , ,

가 .

1

-5

2

1

, 2

60cm

,

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	(/ha)				(/ha)			
Florida 80	54	44	34	44.0	10.0	8.1	8.1	8.7
Grazer	50	44	32	42.0	10.4	9.0	8.0	9.1
Marshall	61	56	45	54.0	11.8	9.5	8.7	10.0
101	76	65	46	62.3	11.7	9.7	8.8	10.1
102	63	57	50	56.7	10.1	8.8	8.5	9.1
103	66	62	47	58.3	12.2	11.5	9.8	11.2
	62	55	42	53.0	11.1	9.4	8.7	9.7

) (1996~1999),

가 가 , 가
가

262 ha 40 ha

2001
2,000ha, 2002 3,300ha .

가
, ?

1

(kg / /)

1985	1990	1995	2000	2001	2002	2003
128.1	119.6	106.5	93.6	88.9	87.0	83.2

) : 64.6kg (2000), 50.1kg (2001)

	pH	(%,)				
	4.25	0.38	0.10	2.27	72	2 ()
	5.02	0.47	0.13	2.36	63	2 ()
	4.68	0.55	0.12	2.17	57	3 ()
	5.03	0.47	0.10	2.34	72	2 ()
468	4.55	0.28	0.11	2.53	72	2 ()
	4.70	0.34	0.15	2.77	68	2 ()
	4.23	0.46	0.15	2.37	62	2 ()
	4.54	0.27	0.13	2.18	67	2 ()

) (2002)