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in

Llácer G. (ed.), Badenes M.L. (ed.).
First international symposium on loquat

Zaragoza : CIHEAM
Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 58

2003
pages 117-118

Article available on line / Article disponible en ligne à l'adresse :

http://om.ciheam.org/article.php?IDPDF=3600148

To cite this article / Pour citer cet article

Guirado E., Farré J.M. **Influence of nitrogen fertilization on the incidence of purple spot in the loquat cv. Gold Nugget.** In : Llácer G. (ed.), Badenes M.L. (ed.). *First international symposium on loquat*. Zaragoza : CIHEAM, 2003. p. 117-118 (Options Méditerranéennes : Série A. Séminaires Méditerranéens; n. 58)

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Influence of nitrogen fertilization on the incidence of purple spot in the loquat cv. Gold Nugget

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SUMMARY – After 4 years of differential N application, 0, 75 or 150 kg/ha/year, N leaf levels have been roughly stable at 0 and 75 kg rates. They have increased slightly at a 150 kg rate. There have not been significant differences between treatments on the incidence of "purple spot".

Key words: Nitrogen, purple spot, loquat, Gold Nugget.

RESUME – *"Influence de la fertilisation azotée sur l'incidence de la tache violette chez le néflier cv. Gold Nugget". Après 4 ans d'applications différentielles de N, 0, 75 ou 15 kg/ha/an, les niveaux foliaires sont restés stables avec 0 ou 75 kg. Ils ont augmenté légèrement avec 150 kg. Il n'y a pas eu de différences significatives entre traitements dans l'incidence de la "tache violette".*

Mots-clés : *Azote, tache violette, nèfle, Gold Nugget.*

Introduction

The "purple spot" is an important physiological disorder in loquat (Gariglio *et al*., 2002; Rodríguez, 1983). Few long term fertilizer experiments have been done in this species (Jaime *et al*., 1987) and none has addressed the purple spot problem in relation with nitrogen fertilisation. This work summarizes the first observations in a long term nitrogen fertilisation study.

Materials and methods

From 1997 to 2001 different nitrogen amounts were applied to adult Gold Nugget trees on seedling rootstock: (i) N_0 received no nitrogen fertilizer; (ii) N_1 75 kg/ha in autumn; and (iii) N_2 75 kg/ha in autumn and 75 kg/ha around the end of February at the time of fastest fruit growth. The design was on randomised blocks with 20 single tree replicates. Before 2000 trees were flood or spitter irrigated. From 2000 they were all drip irrigated with 6-8 drippers per tree according to its size. Yearly each tree received the equivalent to 60-70 kg/ha of P_20_5 and K_20 depending on tree size. All fertilizers were applied by hand to the wetted area. Soil was kept weed free by 3-4 applications per year of glyphosate. Spring grown leaves were analysed in October before inflorecence development.

Results and discussion

The percentage of affected fruits was not influenced by the nitrogen application rates in any of the 4 years of the experiment. Tables 1, 2 and 3 summarize the results of the last two years. The leaf nitrogen levels kept mostly stable except for the double N application that seems to increase it slightly.

Conclusions

After four years of differential nitrogen applications there were only slight, and non significant, differences in leaf N content and incidence of purple spot between treatments.

Table 1. Percentage of affected fruits. Year 2000

Treatment	With spots <1 cm diameter	With spots >1 cm diameter
N_0 (zero nitrogen)	7.1	7.0
N_1 (75 kg/ha in autumn)	7.5	8.0
N_2 (75 + 75 kg/ha in autumn and spring)	7.5	9.4

Table 2. Percentage of affected fruits. Year 2001

Treatment	With spots <1 cm diameter	With spots >1 cm diameter
N_0 (zero nitrogen)	0.50	0.16
N_1 (75 kg/ha in autumn)	0.16	0.33
N_2 (75 + 75 kg/ha in autumn and spring)	0.33	0.16

Table 3. Percentage leaf N

Treatment	Year		
	1999	2000	2001
N_0 (zero nitrogen)	1.42	1.35	1.40
N_1 (75 kg/ha in autumn)	1.47	1.37	1.35
N_2 (75 + 75 kg/ha in autumn and spring)	1.44	1.47	1.53

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