Tomate : un faible rapport ammonium/nitrate pour de plus hauts rendements et des fruits de haute qualité

L'effet du rapport ammonium/nitrate des solutions nutritives à pH contrôlé sur le rendement en tomates (cultivar *Angela*) et leur qualité a été étudié.

Six différentes proportions de $NH_4/(NH_4+NO_3)$ de solutions nutritives de 6 meqN/l à 0, 10, 20, 30, 50 et 100 % ont été testées dans le cadre d'une expérience sous serre en Israël. Tous les traitements ont été maintenus à un pH homogène et constant d'environ 6,8 au moyen de solutions nutritives en passage unique en milieu peu profond, dont la composition est présentée au Tableau 1. Chacun des six traitements à l'essai a été répliqué quatre fois en blocs aléatoires. Le plus haut rendement commercialisable (4,06 kg/plant) a été obtenu grâce au traitement au N à 0 NH_4 (100 % de NO_3), et il n'a pas été observé de diminution de rendement considérable avec les traitements au N à 10-30 % de NH_4 (Figure 1).

Des rendements significativement inférieurs ont été relevés avec les traitements au N à 50 % de NH_4 (2,99 kg/plant) et 100 % (1,63 kg/plant), en raison d'un nombre de fruits par plant inférieur et d'un poids moyen des fruits inférieur. Le traitement à forte teneur en ammonium a eu un effet néfaste sur le développement végétatif des plants : surface foliaire moindre, tige plus fine, inflorescences plus petites et nombre de fleurs inférieur.

La composition chimique des plants a été affectée par les traitements à forte teneur en ammonium : plus de N et moins de K, de Ca et de Mg ont été détectés. L'application de N à 10-50 % d'ammonium dans la solution nutritive a augmenté le

pourcentage de fruits de haute qualité et diminué le pourcentage de fruits mous après 8 jours de conservation à 18 °C. De faibles concentrations de N à 10-30 % de NH_4 n'ont pas eu d'effet néfaste sur le rendement en tomates, et ont même grandement amélioré leur qualité après conservation.

Tableau 1. Composition des solutions nutritives à l'essai.

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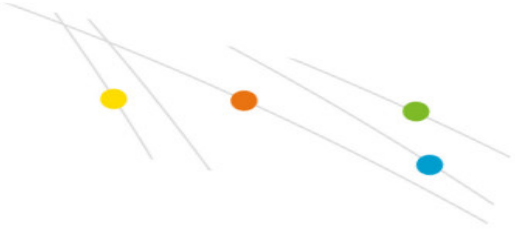

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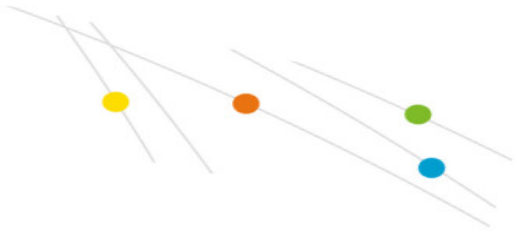

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	Pourcentage de proportion $NH_4/(NH_4 + NO_3)$ dans la solution nutritive					
	0%	10%	20%	30%	50%	100%
	meq/l					
KNO_3	4	4	3,6	2,4	0	0
NH_4NO_3	0	0,6	1,2	1,8	3	0
$Ca(NO_3)_2*_4H_2O$	2	0,8	0	0	0	0
$(NH_4)_2SO_4$	0	0	0	0	0	6
K_2SO_4	0	0	0,4	1,6	2	2
KCl	0	0	0	0	2	2
$H_2PO_4^-$ (as H_3PO_4)	1	1	1	1	1	1
CE de la solution (mS/cm)	**1,5**	**1,5**	**1,5**	**1,6**	**1,9**	**12**

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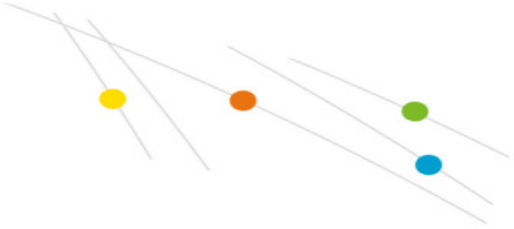

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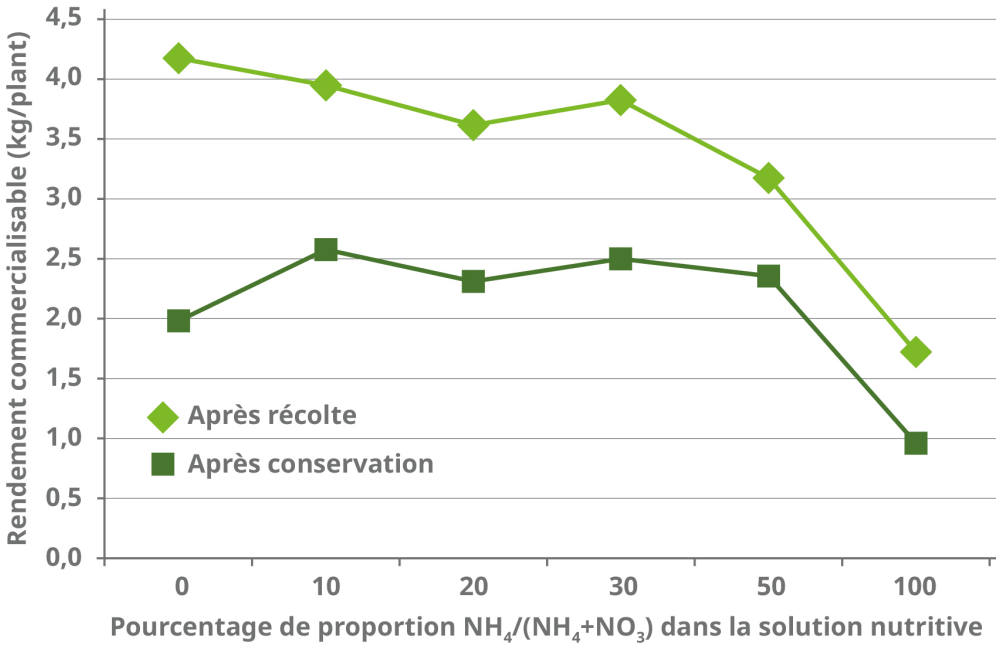

Figure 1. Effet du rapport $NH_4/(NH_4+NO_3)$ dans la solution nutritive sur le rendement commercialisable après récolte (après 2 jours de conservation à 18 °C) et le rendement commercialisable après conservation (8 jours de conservation à 18 °C). Les lettres différentes indiquent des différences significatives entre les valeurs.