ARTICLE IN PRESS

Acta Ecologica Sinica xxx (xxxx) xxx

Contents lists available at ScienceDirect

Acta Ecologica Sinica

journal homepage: www.elsevier.com/locate/chnaes

Effect of a herbicide (floramix) on the development of main weeds and on the yield parameters of wheat, *Triticum durum desf. cv vitron*

Mourad Bourouhou [a,**], Baha-eddine Badouna [b,*]

[a] Laboratory of Plant Biology and Environment, Faculty of science Biology Department, Badji Mokhtar University, P.O. Box 12, Annaba, Algeria
[b] Laboratory Life Science and Technology, Mohamed cherif Messaadia University, 41000 Souk Ahras, Algeria

ARTICLE INFO

Keywords:
Floramix
Doses
Durum wheat
Weeds
Yield

ABSTRACT

The national production of cereals confronted with weeds causes losses estimated at 30% to 50% of yield at the national level. At the same time, a good choice of herbicide and the identification of the best dose is essential to eliminate weeds and have a good yield of durum wheat.

This work concerns the identification of the best dose of Floramix used in the cultivation of durum wheat as well as the identification of the biological families of weeds competing with durum wheat in order to control them effectively. The test was conducted in the open field following a completely random device, three doses of herbicide were chosen, Dose1 (16 mg/ M2 (square meter)), Dose2 (32 mg/ M2 (square meter)), Dose 3 (64 mg/ M2 (square meter)) and control (Without Treatment).

The identification of the best dose makes it possible to avoid the unnecessary use of higher doses since the latter are very polluting, and the census of weeds makes it possible to move towards the more specialized use of herbicides to better control them the census of the most dominant botanical families is that of the dicots, the primulaceae followed by the fabaceae, on the other hand the poaceae (monocotyledons) come in 3rd position. The dicots appeared at the same time as the beginning of the culture, on the other hand the monocots appeared late.

The study conducted on the action of the herbicide Floramix on durum wheat (***Triticum durum desf. cv vitron***). Allowed us to conclude that the high dose (64 mg/m2) has a negative impact on the yield parameters despite the elimination of all the weeds, with a low yield close to the Control Block with 24.56 Quintals / Hectar). While the recommended dose (32 mg/m2) records the best yield of 45.45 Quintals/Hectar, dose 1 comes second at (28.69 Quintals/Hectar), the use of an against dicots herbicide is recommended in order to eliminate the most competitive weeds.

抽象的: 受杂草影响的全国谷物生产造成的损失估计占全国产量的 30% 至 50%。.

同时，选择好除草剂并确定最佳剂量对于除草和硬粒小麦的高产至关重要。这项工作涉及确定在硬粒小麦种植中使用的花卉组合　的最佳剂量，以及确定与硬粒小麦竞争的杂草生物学科以有效控制它们。试验采用完全随机装置，在开阔场地进行，选择三种剂量的除草剂，剂量1(16毫克/平方米平方米)、剂量2(32毫克/平方米(平方米))、剂量3(64毫克/平方米(平方米))和控制(未经处理)。确定最佳剂量可以避免不必要地使用更高剂量，因为后者污染严重，而杂草普查可以更专业地使用除草剂以更好地控制它们。占优势的植物科是双子叶植物，报春花科其次是豆科植物，另一方面，禾本科(单子叶植物)排在第三位。双子叶植物在培养开始的同时出现，而单子叶植物出现较晚。.

该研究是关于除草剂 弗洛拉米克斯 对硬粒小麦(硬粒小麦)的作用。 让我们得出结论，.

尽管消除了所有杂草，但高剂量 (64毫克/平方米) 对产量参数有负面影响，低产量接近 控制块 (24.56 公担 / 公顷)。 虽然推荐剂量 (32毫克/平方米) 记录的最佳产量为 45.45 公担/公顷，但剂量 1 位居第二(28.69 公担/公顷)，建议使用反双子叶除草剂以消除最具竞争力的杂草。.

关键字:弗洛拉米克斯;剂量; 硬质小麦; 杂草； 屈服

* Correspondence to: Badouna Baha-Eddine, Laboratory Life Science and Technology, Mohamed Cherif Messaadia University, 41000 Souk Ahras, Algeria.
** Correspondence to: Bourouhou Mourad, Laboratory of Plant Biology and Environment, Faculty of science Biology Department, Badji Mokhtar University, P.O. Box 12, Annaba, Algeria.
E-mail addresses: mourad.bourouhou@univ-annaba.dz (M. Bourouhou), bahaeddine.badouna@univ-soukahras.dz (B.-e. Badouna).

https://doi.org/10.1016/j.chnaes.2023.02.004
Received 4 March 2022; Received in revised form 3 January 2023; Accepted 13 February 2023

Please cite this article as: Mourad Bourouhou, Baha-eddine Badouna, *Acta Ecologica Sinica*, https://doi.org/10.1016/j.chnaes.2023.02.004

Declaration of Competing Interest

None.

References

[1] E.M.G. da Silva, A.C. Moraes de Aguiar, K. Ferreira Mendes, A. Alberto da Silva, Weed Competition and Interference in Crops, The Author(s), under exclusive license to Springer Nature Switzerland AG, in: K.F. Mendes, A. Alberto da Silva (Eds.), Applied Weed and Herbicide Science, 2022, https://doi.org/10.1007/978-3-031-01938-8_2.

[2] A. Zoschke, Yield losses in tropical rice as influenced by the composition of weed flora and the timing of its elimination, in: B.T. Grayson, M.B. Green, L.G. Copping (Eds.), Pest Management in Rice, Springer, Dordrecht, 1990, https://doi.org/10.1007/978-94-009-0775-1_24.

[3] A. Aboudrare, A. Bouaziz, H. Chekli, Effect of different sequences of installation of common wheat on the weed flora and impact of weeding on the yield and efficiency of water use: Case of the Meknes region, in: Proc. National Cereal Weeding day, 2000, pp. 53–64. Settat.

[4] K. Hammermeister, R. Punnett, How much are weeds costing you? Agbio.ca.Final Research Report – E2006-02: 1 - 5. France, p 249.

[5] V.B. Pontes Junior, A. Alberto da Silva, L. D'Antonino, K.F. Mendes, B.A. de Paula Medeiros, Methods of control and integrated Management of Weeds in agriculture, in: K.F. Mendes, A. Alberto da Silva (Eds.), Applied Weed and Herbicide Science, Springer, Cham, 2022, https://doi.org/10.1007/978-3-031-01938-8_4.

[6] B. Le Buanec, Annex X. Control of weeds, in: Agriculture faced with its technical challenges, Les Presses des Mines, "French Academy of Agriculture", 2019, pp. 257–269. URL: https://www.cairn-sciences.info/–9782356715609-page-257.htm.

[7] G. Barralis, Crop weeds 50 to 500 million seeds/ha, Cultiv. Spec. Weed Contr. 178 (1984) 16–19.

[8] M. Fenni, Etude Weeds of Winter Cereals in the High Plains of Constantine. Ecology, Dynamics, Phenology and Biology of Bromes (State Doctorate Thesis), University of Sétif, 2003, p. 165 (In French).

[9] Brazil., Ministry of Agriculture, Pecuaria and Abastecimento. Regras Para análises de Semenes, MAPA/ACS, Brasília, 2009, p. 395p.

[10] M. Naughty, Vegetable production T.1, the components of production, in: J. B. Balliere (Ed.), Et Fils, 1987 (Paris, 403 p).

[11] P. Dagnelie, Statistical theory and method, agronomic application, Presse agronomique de Grambloux (Belgium) 2, 1993, p. 463. ISBN 2-87016-010-0.

[12] N. Munier-Jolain, L. Parisi, A. Alaphilippe, et al., Chapter 3. The combination of methods, the basis of integrated protection, in: Rethinking Crop Protection. Dijon Cedex, Éducagri Éditions, "Sciences in sharing", 2011, pp. 57–80, https://doi.org/10.3917/edagri.ricci.2011.01.0057. URL: https://www.cairn-sciences.info/–9782844448545-page-57.htm.

[13] P. Ricci, S. Bui, C. Lamine, General conclusion, in: Rethinking crop protection. Dijon cedex, Éducagri Éditions, "Sciences in Sharing", 2011, pp. 221–223, https://doi.org/10.3917/edagri.ricci.2011.01.0221. URL: https://www.cairn-sciences.info/–9782844448545-page-221.htm.

[14] M. Fenni, Study of Winter Cereal Weeds in the High Plains of Constantine. Ecology, Dynamics, Phenology and Biology of Bromes, State doctorate thesis,, University of Sétif, 2003, p. 165.

[15] F. Dessaint, R. Chadoeuf, G. Barralis, Diversity of weed communities in annual crops in Côte-d'Or (France), in: Bioethanol. Agron. About. Weed Science and Agronomy Unit, INRA, Dijon, 2001, p. 98 (In French).

[16] G. Barralis, R. Chadoeuf, F. Dessaint, Long-term influence of cultural techniques on the dynamics of emergence in the field of weeds, Biol. Ecol. System. Weeds, Dijon (1992) 12.

[17] K. Traore, A. Mangara, Phyto-ecological study of weeds in the olive oil agroecosystems of Mé and Dabou, Eur. J. Sci. Res. (2009) 519–533. ISSN 1450-216X Vol.31 No.4.

[18] G. Barralis, Method for studying weed groups in annual crops, Intern. Colloq. Ecol. Biol. Weeds 1 (1977) 59–68.

[19] C. Lamine, A. Messean, R. Paratte, et al., Chapter 2. Chemical control at the heart of the construction of the agri-food system, in: Rethinking Crop Protection. Dijon Cedex, Éducagri Éditions, "Sciences in Sharing", 2011, pp. 29–52, https://doi.org/10.3917/edagri.ricci.2011.01.0029. https://www-cairn-sciences-info.sndl1.arn.dz/–9782844448545-page-29.htm.

[20] B. Ludovic, C. Gérard, Y. Pierre-Yves, Agricultural Perspectives - On the side of herbicides Optimizing their application to reduce their use ARVALIS-Institut du végétal, N°369–2010, P 42–46 (In French).

[21] C. Lamine, A. Messean, R. Paratte, et al., Chapter 2. Chemical control at the heart of the construction of the agri-food system, in: Rethinking Crop Protection. Dijon Cedex, Éducagri Éditions, "Sciences in Sharing", 2011, pp. 29–52, https://doi.org/10.3917/edagri.ricci.2011.01.0029. URL: https://www-cairn-sciences-info.sndl1.arn.dz/–9782844448545-page-29.htm.

[22] M. Quillet, Controlling weed flora: study of mechanical weeding strategies with organic farmers. Engineering memory, Angers Higher Sch. Agricult. Groupe ESA 20 (2010) 33 (In French).

[23] M. Boukretaoui, Effect of different chemical weedkillers on the yield of triticale, ITGC, Cereals 40 (2003) 35–40 (In French).

[24] J.C. Barros, J.G. Calado, G. Basch, M.J. Carvalho, Effect of different doses of post-emergence-applied iodosulfuron on weed control and grain yield of malt barley (*Hordeum distichum* L.), under Mediterranean conditions, J. Plant Protect. Res. 56 (2016) 15–20.

[25] J.L. De Prado, H. Cruz-Hipolito, M. Bouhache, A. Taleb, R. Torralva, G. De Prado, Current situation of herbicide resistance in the Mediterranean region, in: Proceedings 7th Congress of the Moroccan Plant Protection Association, Rabat, 2010, pp. 1–10 (In French).

[26] A. Messean, S. Bui, N. Munier-Jolain, et al., Chapter 8. Rethinking innovation, in: Rethinking Crop Protection. Dijon Cedex, Éducagri Éditions, "Sciences in Sharing", 2011, pp. 179–195, 10.3917/edagri.ricci.2011.01.0179. URL: https://www.cairn-sciences.info/–9782844448545-page-179.htm.