

WEED RISK ANALYSIS AND ASSESSMENT OF WEED SEED CONSIGNMENT WITH IMPORTED GRAINS

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Abstract

This is a pioneer work for weed risk analysis in Egypt, where 1334 samples of imported grains in the period from 1/3/2009 to 1/3/2010 were used to detect weed seed consignment in imported grain shipments as well as to estimate weed risk assessment of the main four weed species, namely wild oat (*Avena* spp.), rye grass (*Lolium temulentum*), field bindweed (*Convolvulus arvensis*) and ragweed (*Ambrosia artemisiifolia*), giant ragweed (*Ambrosia trifida*) as alien weed on agriculture in Egypt. Results indicated that 91.1% off samples contaminated with weed seeds less than the permissible level (> 24 seeds/kg of grains) and were accepted. Meanwhile, the rest of samples had more than this level (<25 – 996 seeds/kg) and were refused to be screened at the permissible level. Weed risk analysis scores for the above mentioned four species indicated that the probability of their entry was 6.3, 6.3 and 5.6, establishment was 6.6, 7.5 and 6.4 and the economic impact was 5.6, 4.9 and 4.3 for wild oat, rye grass and field bindweed respectively (the maximum score =9). For the genus of *Ambrosia*, it has three species, common ragweed (*Ambrosia artemisiifolia*), giant ragweed (*Ambrosia trifida*) and perennial ragweed (*Ambrosia psilostachya*) were frequently detected in imported wheat, maize and sorghum seeds and seen to possess the highest potential phytosanitary risk for Egypt. These weed species were not found in Egypt and achenes of these weeds were detected, they had the ability to germinate and to produce viable seeds under growth chamber and wire house conditions. The probability scores for the introduction of *Ambrosia* spp. in Egypt is 6.3 and is considered relatively high in the large quantities of imported grains where they can survive and transit easily after dropping into the soil to germinate causing field infestation and the probability of establishment was relatively high economic impact showed a degree because 6.0 causing an economical loss by, and the *Ambrosia* spp. because of these reasons imported plant materials, i.e. wheat, maize and sorghum should be completely free of *Ambrosia* spp. achenes by screening through quarantine work to prevent its entrance to the territory of Egypt. Meanwhile, the other weeds of wild oat, rye grass and field bindweed, which were recorded in Egypt should be under the permissible level of seed contamination (>25 seeds per kg) in the imported grains to be allowed to enter the territory of Egypt.

INTRODUCTION

World trade of grains is permanently ongoing an increase in volume year by year followed by another increases in the entry alien weed species which invade agriculture in the territory of Egypt. Weed risk assessment is a new discipline and the

first international symposium on this topic was recently held in Australia, Grooves et al (2001). Many of weed species seeds have been found contaminating imported grains of wheat, maize and sorghum. Some of these species are recorded in Egypt in the Egyptian flora list, Hassanein *et. al.* (2005) i.e. wild oat, rye grass and field binweed, however some other weed seeds were not recorded yet in Egypt, such as *Ambrosia artemisibolia*, *A. trifida*, *A. psilostachya* and *Aegilopsis cylindrica*. Pest risk analysis (PRA) is a three-stage process of evaluating biological or other scientific and economic evidence to determine whether a pest should be regulated and strength any phytosanitary measures to be used against it (FAO, 2001b). Deride (2006) and Neville and David (2007) mentioned that in Australia it cost 4 billion dollars to improve detection and management of new weed incursions as well as to develop some new control tactics. Weed risk assessment is an acceptable methodology to determine the risk of exotic plant species. Williams (2003) highlighted that actions to be taken to exclude a plant species from a country because of its weed potential must be consistent with the international standards regulating the movement of trade goods according to the obligations of the world trade organization (WTO 1994) and (FAO, 1996). Qiao et al (2009) identified invasive plants that had caused significant negative impacts to native biodiversity, environment, economy and agriculture, with groups being different in their extent and nature of impacts. *Ambrosia artemisifolia* loud exert a strong allelopathic effects where *Avena fatua* is considered as noxious, *Lolium temulentum* is considered as a toxic weed in wheat, which suppress native plants and significantly reduce yield, quality of crops and production and finally, *Ambrosia* spp. shows tremendous amount of pollen grains that significantly threaten human health and spreads fast. For this reason a number of 1334 samples from imported grains during 2009 and 2010 were prepared for this study to carryout a weed risk analysis and assessment of weed seeds consignment with imported grains. The aim of the study was to reduce the influx of new weeds from abroad and more effectively mange the new incursions already noticed in Egypt.

MATERIALS AND METHODS

a. Source of materials:

A number of 1334 samples of imported grain shipments to Egypt, i.e. wheat, maize and sorghum were taken by quarantine officers during the period from 1/3/2009 to 1/3/2010 and inspected by the Weed Research Laboratory staff to detect the degree of contamination by weed seeds consignment with these shipments. The sources of these shipments were Russia, U.S.A., Ukraine, Argentine, Serbia, Hungaria, Poland and some other countries.

b. Method of detection

Weed seed detection was carried out by video microscopes and magnified lens and the count was carried out as no./kg of grains.

c. Weed risk assessment

Plant protection services and their quarantine sections should be able to determine the likelihood of introducing or spreading invasive species and also to determine adequate measures to minimize their potential harm. The three steps indicated in IPPC pest risk analysis have to figure Pest risk analysis flow chart (from FAO, 1996) (Appendix 1).

The WRA is based on the answers to 44 questions, according to the scoring format (as shown in appendix 2) covering of weed attributes in order to screen for taxa that are likely to become weeds of the environment and/or agriculture. The questions are divided into three sections producing identifiable scores that contribute to the total score (Witold 2001).

RESULTS AND DISCUSSION

A- Estimating degree of weed seeds consignment with imported grains:

Figure (1) show that during the period from March 1st, 2009 to March 1st, 2010, about 1334 samples of wheat, maize and sorghum grains imported from Russia, Ukraine, USA, France and Poland at percentages of 39.3, 20.3, 15.3, 15.1 and 2.3, respectively, in addition to about 7.7% from other countries were collected.

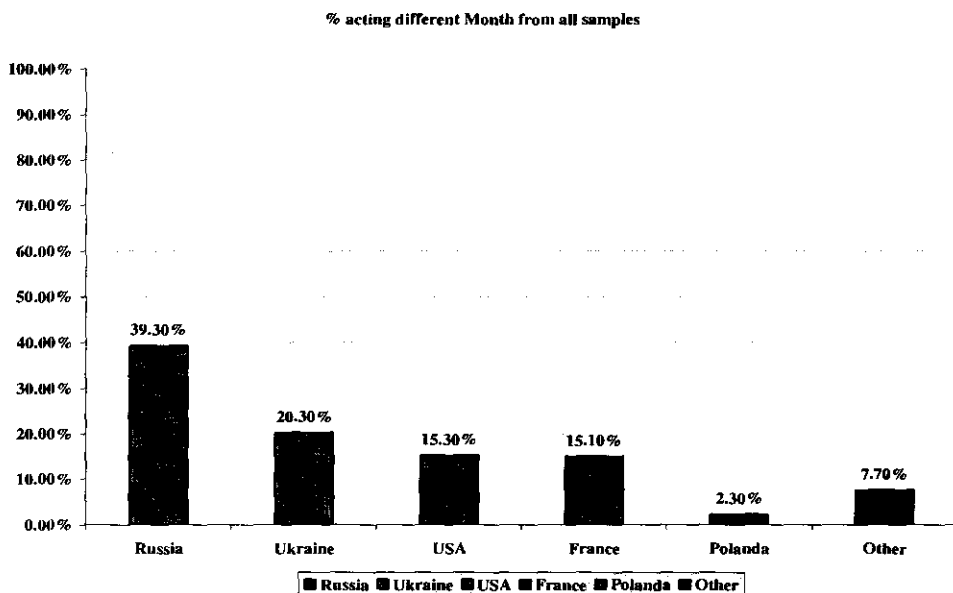


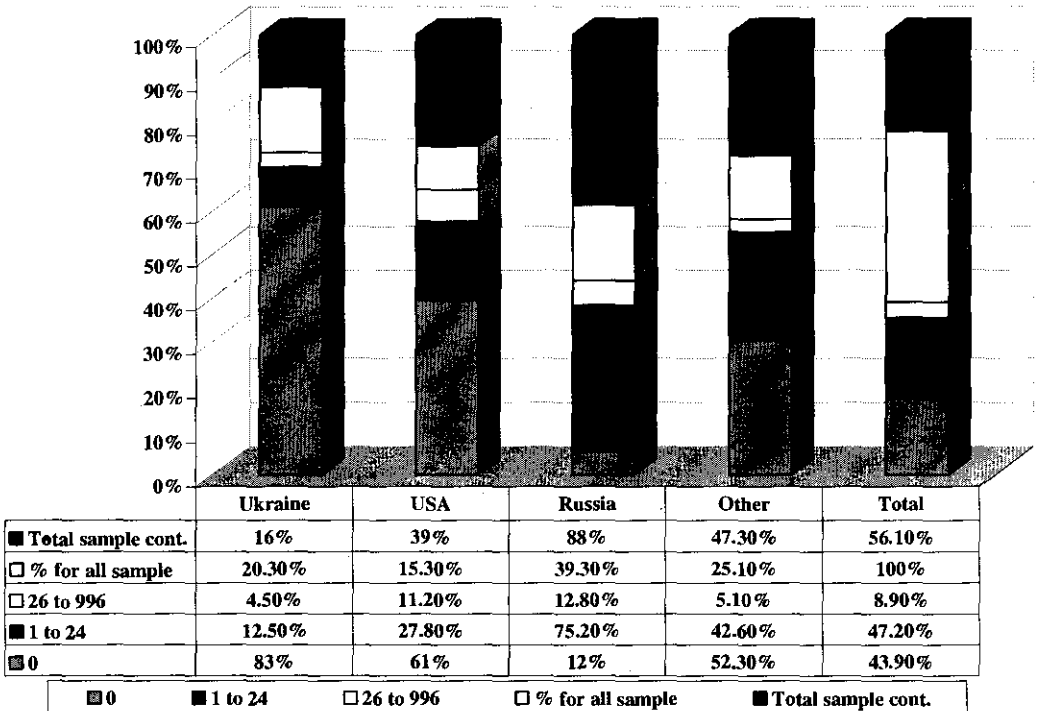
Fig 1. % of sample of grains imported from various countries to Egypt, during 2009 and 2010.

Table (1) and Fig (2) show that the degree of contamination by weed seeds in imported grain shipments were about 91.1% less than permissible level and accepted (25 weed seeds/kg) grains, 44% were free of weed seeds and about 8.9% of samples were contaminated by higher number of seeds that exceeded the permissible level (26-996 seeds kg), and had been cleaned. These seeds are mainly belong to wild oat, rye grass and field bindweed in addition to ragweed which are not found in Egypt. Thus, weed risk analysis had been conducted to these species. Others being from France, Argentine and Syria.

Table 1. Level of weed seed contamination in imported grains during 2009/2010 of weeds recorded in Egypt.

Country	Level of weed seed contamination (no./kg of grains)						Total
	0		1-24		> 26		
	No.	%	No.	%	No.	%	
Ukraine	225	83	34	12.5	12	4.4	271
USA	125	61	57	278	23	11.2	205
Russia	63	12	395	75	67	12.7	527
other	174	52.3	142	426	17	5.1	333
Total	587	44	668	47	119		1336

Fig. 2. % of imported samples contaminated with weed species (*Avena spp*, *Lolium spp* and *Convolvulus spp*) during the period of 1/3/2009 to 1/3/2010

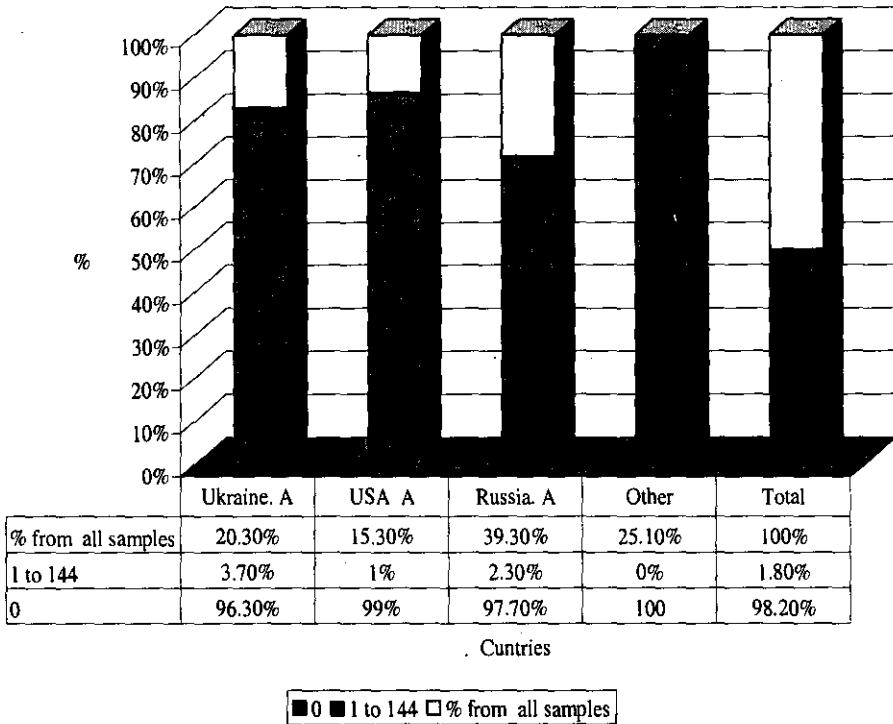


Data in Table (2) and Fig. (3) show that *Ambrosia* was found in 1%, 2.3% and 3.7% in the grain shipments imported from USA, Russia and Ukraine, respectively.

Table 2. Number of achene *Ambrosia* spp./sample and frequency in different countries.

Number of <i>Ambrosia</i> spp./kg grain	Ukraine.	USA	Russia.
	No	No	No
0	261	203	514
1	0	1	5
2	0	1	4
3	0	0	1
4	0	0	2
5	0	0	0
6	0	0	0
17	1	0	0
19	1	0	0
25	1	0	0
29	1	0	0
37	1	0	0
43	1	0	0
62	1	0	0
79	1	0	0
109	1	0	0
144	1	0	0
Total samples	271	205	526
No. of seeds/kg	No.	No.	No.
Free level	261	203	514
Infested with <i>Ambrosia</i>	10	2	12

Figure 3. % of imported samples contaminated with Ambrosia seeds no./kg during 1/3/2009 to 1/3/2010



B. Weed risk analysis

Data in table (3) show that answering the questionnaire of weed risk analysis (WRA) was carried out according to the scheme adapted by (witold 2001), (appendix1).

Table 3. Final evaluation of weed risk area for Egyptian weed species ((*Lolium* spp, *Avena* spp, *Convolvulus* spp and alien weed of *mbrosia*)

Weed species	Probability of introduction	Probability of establishment	Economic impact
<i>Ambrosia</i>	82:13=6.3	7.23	108:18=6.0
<i>Avena</i> spp	82:13=6.3	86.13=6.6	107:19=5.6
<i>Lolium</i> spp	82:13=6.3	97:13=7.5	93:19=4.9
<i>Convolvulus</i> spp	70:13=5.4	83:13=6.4	81:19=4.3

It was based on answering the 44 questions for weed species (*Avena* spp, *Lolium* spp, *Convolvulus* spp and *Ambrosia* spp.). It was reported that the average score of probability of introduction of these weeds were 6.3, 6.3 and 5.6 of the genus *Avena*, *Lolium* and *Convolvulus*, respectively. Which are considered relatively high (the maximum scores = 9). Seeds in imported grains may be easily introduced into the WRA territory of Egypt together with plant material (seeds and grain of cereals and maize, grain of soya bean etc.). Seeds of these weeds can survive transit easily and after dropping into the soil they are likely to germinate causing the fields and other areas to be infested with the weeds.

Concerning probability of establishment results show that the average score obtained was 6.6, 7.5, 6.4 of the genus *Avena*, *Lolium* and *Convolvulus*, respectively and this is relatively high. This indicates that the genus *Avena*, *Lolium*, *Convolvulus* introduced into the WRA weed risk analysis that was carried out according to the scheme of Witold(2001) which determines the area they can establish and develop on all the fields of Egypt.

Economic impact results show that the average score obtained 5.6, 4.9, 4.3 indicates that the probability of causing economical losses by (*Avena* spp, *Lolium* spp, *Convolvulus* spp) is relatively high. Dense infestations of crop fields with these weeds could significantly reduce yields.

Common ragweed for (*Ambrosia artemisiifolia* L., *A. trifida* L and *A. psyllostachya* DC.) was not presented in Egypt and according to Law No. 53 of 1966 promulgating the Law of Agriculture which defined plant harmful pests and Agriculture products infested with pests unrecorded in Egypt, shall decline the entry of these weed into Egypt and thus prevent entry of any samples contaminated by siconia of this genus. Fig. (3) shows that % of the samples refused due to contamination by *Ambrosia* spp. was about 1.8% of all samples during the period of 1/3/2009 to 1/3/2010. The high contamination samples came from Ukraine 3.7% followed by Russia 2.3% and USA 1%. The range number siconia of *Ambrosia* spp were 1 to 144 siconia/ one kg grain sample. Due to its answers weed risk assessment of this genus indicated that the average score obtained, 6.3, points out that the probability of weeds introduction of this genus is relatively high. Siconia of these weeds may be easily introduced into the WRA area together with plant material (seeds and grain of cereals, maize and soyabean seeds etc.). Big quantities of such plant materials are imported to Egypt each year. Siconia of the weeds can survive transit easily and after dropping into the soil they are likely to germinate causing the fields and other areas infested with the weeds. It is possible even if they are present in plant material for consumption or processing.

Probability of establishment of the average score obtained, 7.23 is relatively high. It indicates that *A. artemisiifolia*, *A. psilostachya* and *A. trifida* introduced into the PRA area may establish there and develop both on ruderal places and crop fields. Of course, the highest probability of establishment in the crop field occurs in case of introduction of the weeds together with the sowing material. Climatic conditions and other abiotic factors in Egypt are similar to these in the area of origin of the above mentioned *Ambrosia* species, so they are likely to aid the establishment. Probably there are no natural enemies for weeds in Egypt, which could efficiently prevent the establishment of weeds.

Economic impact of the average score obtained, 6, indicates that the probability of causing economical losses by *A. artemisiifolia*, *A. psilostachya* and *A. trifida* is relatively high. Dense infestations of crop fields with these weeds could significantly reduce yields. The pollen of all plants of the genus *Ambrosia* would cause strong allergic diseases known as "hay fever". Owners of areas (crop fields, ruderal places etc.) would have to cover costs of eradication of the weeds. The data obtained so far indicate that eradication of *Ambrosia* spp. is difficult, even if the foci is small. Therefore costs of treatment necessary for eradication of these weeds are likely to be high. Siconia of the weeds (especially *A. artemisiifolia* and *A. trifida*) are likely to be spread easily within the PRA area. So, the range of the problem could be wider.

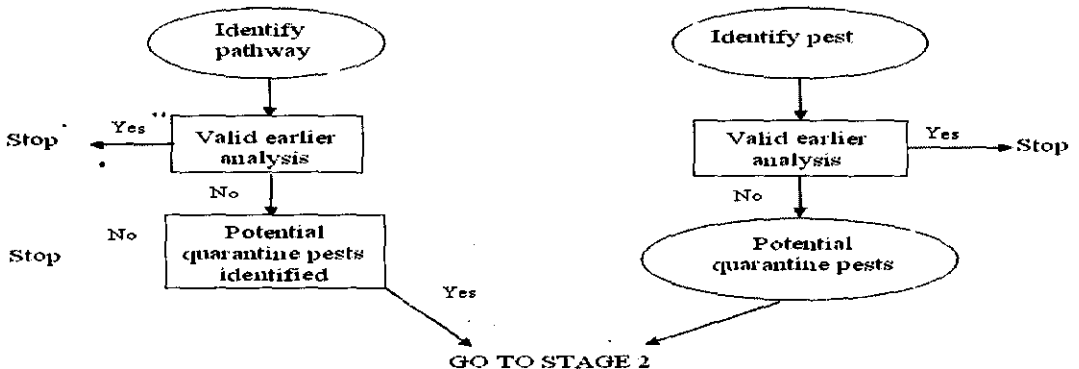
C. Weed risk management and conclusion for quarantine work should: -

- Screen grains to less than permissible level for wild oat, rye grass and field bind weed >25 seeds/kg and 0 level for ragweed should be obligate.
- Managing wild oat, rye grass and field bindweed by herbicides in winter crops.

APPENDIX (1)

Stage 1:- identification of the pathway that may allow the introduction and spread of the exotic plant.

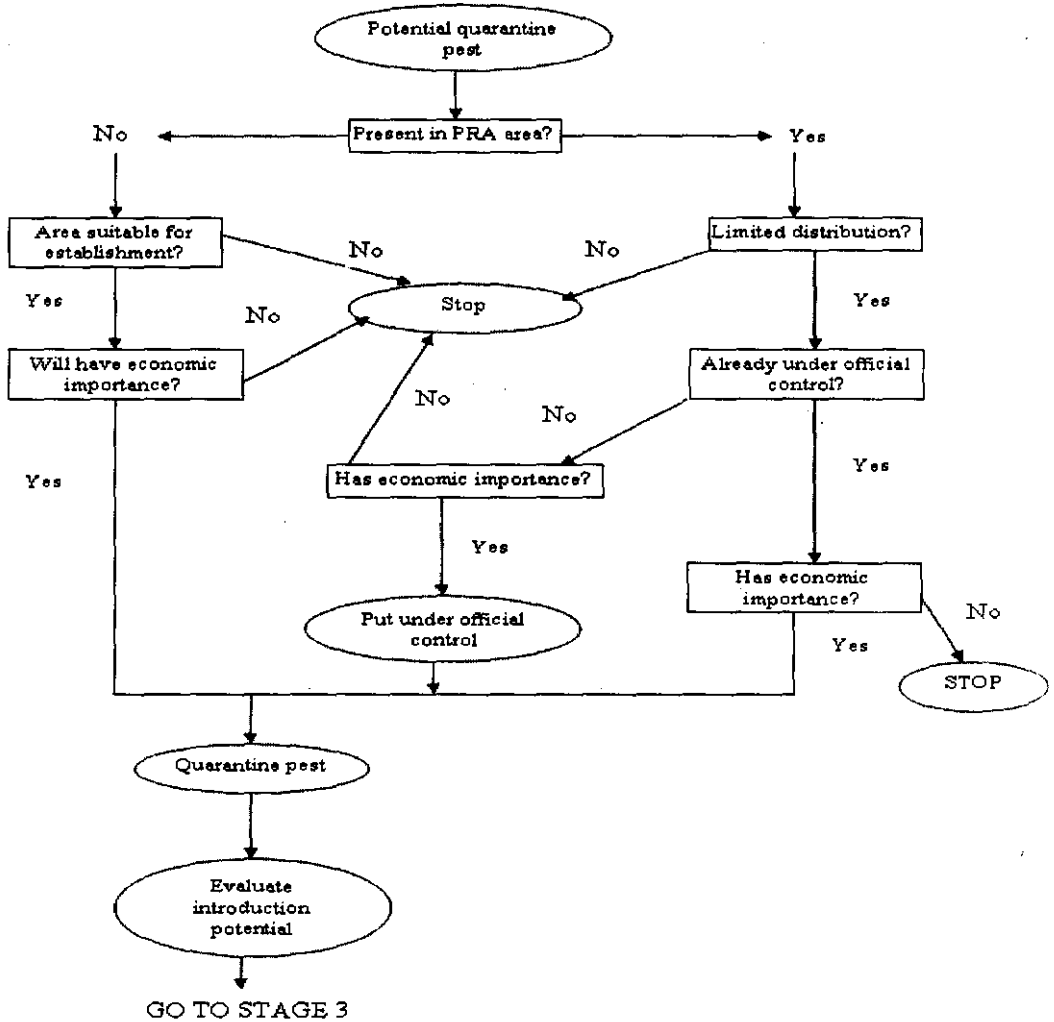
Stage1:-initiation



Stage 2:- pest risk assessment, which consists of considering all aspects of each plant and in particular, available current information about its geographical distribution, biology and economic importance. This information is then used the establishment, spread and economic importance potential in the endangered area and finally, characterization of the potential of introduction.

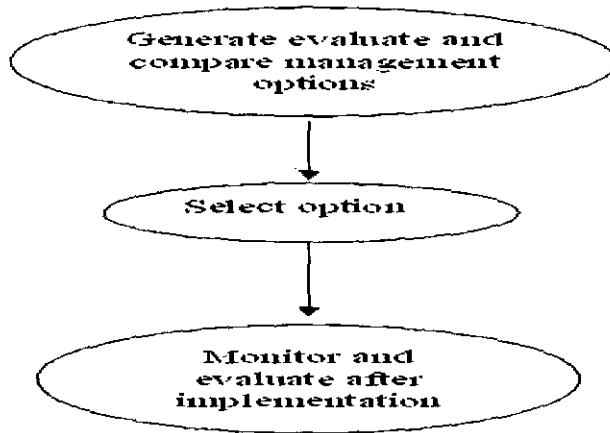
Weed risk analysis: -

Stage 2: Assessment



Stage 3:- pest risk management determining phytosanitary measures to be applied to effectively protect the endangered area.

Stage 3 : - Management



APPENDIX (2)

WRA area

The WRA area is the territory of Egypt.

Weed Risk Analysis (WRA) of the territory of Egypt (as WRA area) was carried out on the basis of information compiled in the format of EPPO PRA Guideline no. 1 "Check-list" of information required for PRA (OEPP/EPPO, 1993) (Part A) with some modification caused by the nature of the pest - weeds are not considered by the author of standard "Check-list" to be analyzed. Appendix (1): -

1. Probability of introduction (Entry): -

- As a contamination of plant material being in trade.

1.1. How many pathways could the weed be carried on?

(Few = 1, many = 9)

1.2. How likely are the pests to be associated with the pathway at origin?

(Not likely = 1, very likely = 9)

1.3. Is the concentration of the pests on the pathway at origin likely to be high?

(Not likely = 1, very likely = 9)

1.4. How likely are the pests to survive existing cultivation and commercial practices?

(Not likely = 1, very likely = 9)

1.5. How likely are the pests to remain undetected during inspection or testing?

(Not likely = 1, very likely = 9)

- 1.6. How likely are the pests to survive other existing phytosanitary procedures?
(Not likely = 1, very likely = 9)
- 1.7. How likely are the pests to survive in transit?
(Not likely = 1, very likely = 9)
- 1.8. Are the pests likely to multiply during transit?
(Not likely = 1, very likely = 9)
- 1.9. How large is movement along the pathway?
(Not large = 1, very large = 9)
- 1.10. How widely is the commodity to be distributed throughout the WRA area?
(Not widely = 1, very widely = 9)
- 1.11. How widely spread in time is the arrival of different consignments?
(Not widely = 1, very widely = 9)
- 1.12. How likely are weed to be able to transfer from the pathway to a suitable crop - with plant material in trade?
(Not likely = 1, very likely = 9)
- 1.13. Is the intended use of the commodity likely to aid introduction - with plant material in trade?
(Not likely = 1, very likely = 9)

Establishment

- 1.14. How many kinds of crops where the pests could develop are present in the WRA area?
(One or few = 1, many = 9)
- 1.15. How extensive are the crops where the pests could develop in the PRA area?
(Rare = 1, widespread = 9)
- 1.16. How similar are the climatic conditions that would affect Weeds' establishment in the WRA area and in the area of origin?
(Not similar = 1, very similar = 9)
- 1.17. How similar are other a biotic factors in the WRA area and in the area of origin?
(Not similar = 1, very similar = 9)
- 1.18. How likely are the pests to have competition from existing species in the PRA area for its ecological niche?
(Very likely = 1, not likely = 9)
- 1.19. How likely is establishment to be prevented by natural enemies already present in the PRA area?
(Very likely = 1, not likely = 9)
- 1.20. If there are differences in the crop environment in the WRA area to that in the area of origin are they likely to aid establishment?
(Very likely = 1, not likely = 9)

1.21. Are the control measures, which are already used against other pests during the growing of the crop likely to prevent establishment of the pests?

(Very likely = 1, not likely = 9)

1.22. Is the reproductive strategy of the pests and duration of life cycle likely to aid establishment?

(Not likely = 1, very likely = 9)

1.23. How likely are relatively low populations of the pests to become established?

(Not likely = 1, very likely = 9)

1.24. How probable is that the pest could be eradicated from the PRA area?

(Very likely = 1, not likely = 9)

1.25. How genetically adaptable are the pests?

(Not adaptable = 1, very adaptable = 9)

1.26. How often have the pests been introduced into new areas outside their original range?

(Never = 1, often = 9)

2. Economic impact assessment

2.1 . How important is economic loss caused by the pests within their existing geographic range?

(Little importance = 1, very important = 9)

2.2. How important is environmental damage caused by the pests within their existing geographic range?

(Little importance = 1, very important = 9)

2.3. How important is the social damage caused by the pests within their existing geographic range?

(Little importance = 1, very important = 9)

2.4. How extensive is the part of the PRA area likely to suffer damage from the pests?

(Very limited = 1, the whole PRA area = 9)

2.5. How rapidly are the pests liable to spread in the PRA area by natural means?

(Very slowly = 1, very rapidly = 9)

2.6. How rapidly are the pests liable to spread in the PRA area by human assistance?

(Very slowly = 1, very rapidly = 9)

2.7. How likely is it that the spread of the pests could be contained within the PRA area?

(Very likely = 1, not likely = 9)

2.8. How likely are the pests to have significant effect on producer profits due to changes in production costs yields etc. in the WRA area?

(Not likely = 1, very likely = 9)

2.9. How likely is the pest to have a significant effect on consumer demand in the WRA area?

(Not likely = 1, very likely = 9)

2.10. How likely is the presence of the pests in the PRA area to affect exports markets?

(Not likely = 1, very likely = 9)

2.11. How important would other costs resulting from introduction be (e.g. costs of research; advice)?

(Little importance = 1, very important = 9)

2.12. How important is the environmental damage likely to be in the PRA area?

(Little importance = 1, very important = 9)

2.13. How important is the social damage likely to be in the PRA area?

(Little importance = 1, very important = 9)

2.14. How probable is that natural enemies, already present in the PRA area, will affect populations of the pest if introduced?

(Very likely = 1, not likely = 9)

2.15. How easily can the pests be controlled?

(Easily = 1, very difficulty = 9)

2.16. How likely are control measures to disrupt existing biological or integrated systems for the control of other pests?

(Not likely = 1, very likely = 9)

2.17. How likely are control measures to have other undesirable side effects?

(Not likely = 1, very likely = 9)

2.18. Are the pests likely to develop resistance to plant protection products?

(Not likely = 1, very likely = 9)

REFERENCES

1. Deride, L., 2006. Status of weed science in Australia prospects and challenges. *Pak J. Weed Sci. Res* 12(1-2): 1-5
2. FAO, 1996 International Standards for Phytosanitary Measures. Import Regulation: Guidelines for Pest Risk Analysis. Publication No. 2, Secretariat of the International Plant Convention of Food and Agriculture Organization of the United Nations (FAO), Rome.
3. FAO. 2001b. International Standards for Phytosanitary Measures. Pest Risk Analysis for Quarantine Pests. Publication No. 11. secretarial of the International Plant Convention of Food and Agriculture Organization of the United Nations (FAO), Rome.
4. Grooves, R.H., F.D. Panetta and J.G. Viktor. 2001. Weed Risk Assessment. CSIRO publishing Collingwood, Victoria, Australia.
5. Hassanein, E.E, R.A., Abo Elenin, H.M., Ibrahim, M.S. Tewfik, A.S. Kholosy, H.R. El Wekil, Z.R. Yahia and H.T. Al Maysafy, 2005. IPM Egyptian experience in weed management in winter cereals and legumes. *Weed Research Central Laboratory, ARC, Giza, Egypt* 361 pp.
6. Neville, D. C. and A. B. .David 2007. Application of common predictive habitat techniques for post-border weed risk management. *Correspondence: Neville D. Crossman, Policy and Economic Research Unit, CSIRO Land and Water, PMB2, Glen Osmond, South Australia 5064, Australia. E-mail: neville.crossman@csiro.au
7. OEPP/EPPO. 1993. Guidelines on pest risk analysis. *Bulletin OEPP/EPPO Bulletin*, 23, 191-198.
8. Qiao, Q. H., M. W.Y. Y., Jian, L. Z. Bai and G. X. Wang, 2009. Biodivers conserve 18:305-316 DOI 10.1007/s10531-008-9485-2 identifying the most noxious invasive plants in china: role of geographical origin, life form and means introduction.
9. Williams P. A. 2003. Guidelines for weed-risk assessment in developing countries. *Weed management for developing countries. Food and Agriculture Organization of the United Nations (FAO), Rome.* PP 37-59
10. Witold, K. 2001. Pest Risk Analysis and Risk Assessment for the Territory of the Republic of Poland (as PRA area) on *Ambrosia* spp. Book (updated version). 08-14124, pp.51.
11. WTO. 1994. Agreement on the application of Sanitary and Phytosanitary measures. (also available at <http://WWW.wto.org>). World Trade Organization. Uruguay Round of Multinational Trade Negotiations. New York, World Trade Organization.

تحليل المخاطر المصاحبة لبذور الحشائش ودرجة تلوث الحبوب المستورده بها

محمد شمس مكي ، الحساتين الشربيني حساتين ، أكرم نصار محمد نصار ،
محمد رضا مشتهري - أحمد صادق عثمان خلوصي- معوض فضل الله ضى

المعمل الفرعى لبحوث الحشائش - معهد بحوث المحاصيل الحقلية - مركز البحوث الزراعية -
جيزة - مصر

يعتبر هذا عمل رائد فى مجال تحليل مخاطر بذور الحشائش بمصر حيث أجرى لأول مرة باستخدام عدد ١٣٣٤ عينة من شحنات الحبوب المستوردة فى الفترة من ٢٠٠٩/٣/١ الى ٢٠١٠/٣/١ لتتبع درجة تلوثها ببذور الحشائش المختلفة بها. وكذا تقدير مخاطر ٤ أنواع من بذور الحشائش المتواجدة بها وهى الزمير والصامة و العليق المسجلة محلياً والأمبروزيا بنوعها كحشيشة أجنبية غير موجودة بمصر. أوضحت النتائج أن ٩١,١% من العينات المأخوذة من شحنات الحبوب تحتوى على بذور حشائش أقل من المستوى المسموح به (أقل من ٢٤ بذرة/كجم من الحبوب) بينما ٨,٩% من الشحنات تحتوى على أكثر من ٢٥ - ٩٩٦ بذرة/كجم والتي رفضت واعدت غربلتها مرة أخرى للوصول الى أقل من الحدود المسموح بها. وأشارت نتائج تحليل المخاطر للحشائش الأربع المذكورة أن درجات احتمال دخول هذه الحشائش هى ٦,٣ & ٦,٣ و ٥,٦ على الترتيب بينما احتمال انتشارها هى ٦,٦ & ٧,٥ و ٦,٤ على الترتيب وان درجات التأثير الاقتصادى هى ٥,٦ & ٤,٩ و ٤,٣ على الترتيب لحشائش الزمير و الصامة و العليق وهى تعتبر درجات مرتفعة (الحد الاقصى للدرجات = ٩ درجة) بينما يشير تحليل المخاطر لبذور جنس الامبروزيا أنها تواجدت بعينات القمح والذرة والسورجم (وحازت على درجة عالية من المخاطر كحشيشة حجرية) ويجب ان تعامل كحشيشة حجرية ممنوع دخولها مصر حيث يجب إيقاف دخولها الى مصر حيث انها قادرة على الانبات وانتاج بذور تحت الظروف المصرية ونالت درجة ٦ مما يشير الى امكانية دخولها بدرجة كبيرة كما إنها نالت (٧ درجات) فى قابليتها للتوطن وهى درجة عالية، وعلى ٦ درجات فى التأثير الاقتصادى الضار مما يعطيها فرصة عالية لاحداث خسائر اقتصادية كبيرة. لهذه الاسباب فإنه يجب التأكد من خلو المواد النباتية المستوردة من بذور الامبروزيا عن طريق غربلتها تماماً قبل دخولها الاراضى المصرية. بينما الانواع الثلاثة الاخرى والمسجلة محلياً وهى الزمير والصامة والعليق فإنه يجب أن تحتوى الحبوب المستورده على أقل من الحد المسموح بها أى أقل من ٢٥ بذرة/كجم للسماح بدخول هذه المستوردات الى الاراضى المصرية.