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**Datasheet for the decision  
of 22 September 2011**

**Case Number:** T 1537/09 - 3.3.01  
**Application Number:** 01979933.7  
**Publication Number:** 1324662  
**IPC:** A01N 51/00, A01N 51/00,  
A01N 63/00  
**Language of the proceedings:** EN

**Title of invention:**

Treatment of transgenic corn seeds with thiamethoxam

**Applicant:**

Monsanto Technology LLC  
Syngenta Participations AG

**Headword:**

Treatment of transgenic corn seeds with thiamethoxam/MONSANTO

**Relevant legal provisions:**

EPC Art. 123(2), 56, 54

**Keyword:**

"Main request and auxiliary requests 1 and 2 - Added matter (yes)"  
"Auxiliary request 3 - Inventive step (no) - Improvement expected in view of the prior art"

**Decisions cited:**

T 0068/85

**Catchword:**

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Case Number: T 1537/09 - 3.3.01

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.01  
of 22 September 2011

**Appellant I:** Monsanto Technology LLC  
(Applicant 1): 800 North Lindbergh Boulevard  
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**Appellant II:** Syngenta Participations AG  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 8 September 2008  
refusing European patent application  
No. 01979933.7 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman:** P. Ranguis  
**Members:** J.-B. Ousset  
D. S. Rogers

## Summary of Facts and Submissions

- I. An appeal was lodged against the decision of the examining division to refuse the European patent application No. 01 979 933.7.
- II. The examining division considered that the process of claim 1 of the set of claims pending before the examining division was not inventive over document (1) (WO-A-99/35913).
- III. Together with the statements setting out the grounds of appeal, a main and three auxiliary requests were submitted under care of a letter dated 15 January 2009. The present decision is based on these requests.

Independent claim 15 of the main request reads as follows:

"1. A seed transgenic corn plant comprising the seed having an exogenous gene encoding a Cry3 protein having activity against at least one of the one or more pests wherein the seed has been treated with 100 to 600 g of thiamethoxam per 100 kg seeds."

Claim 6 of the first auxiliary request reads as follows (the underlying shows the differences to claim 15 of the main request):

"1. A seed of a transgenic corn plant comprising the seed having an exogenous gene encoding a modified Cry3B\* protein having activity against at least one of the one or more pests wherein the seed has been treated with 100 to 600 g of thiamethoxam per 100 kg seeds."

Claim 9 of the second auxiliary request reads as follows:

"1. A seed of a transgenic corn plant comprising the seed having an exogenous gene encoding a Cry3 protein having activity against at least one of the one or more pests and selected from Cry3Bb. 11230, Cry3Bb. 11231, Cry3Bb. 11232, Cry3Bb. 11233, Cry3Bb. 11234, Cry3Bb. 11235, Cry3Bb. 11236, Cry3Bb. 11237, Cry3Bb. 11238, Cry3Bb. 11239, Cry3Bb. 11241, Cry3Bb. 11242, and Cry3Bb. 11098 protein derived from *Bacillus thuringiensis* wherein the seed has been treated with 100 to 600 g of thiamethoxam per 100 kg seeds."

Claim 1 of the third auxiliary request reads as follows:

"1. A method for protecting a transgenic corn plant against feeding damage by one or more pests, the method comprising providing a seed for the transgenic corn plant wherein the seed comprises an exogenous gene encoding a Cry3Bb.11231 or CryBb.11098 protein having activity against at least one of the one or more pests; and treating the seed with an effective amount of thiamethoxam pesticide from 100 to 600 g of the pesticide active ingredient per 100 kg seeds."

IV. The appellant argued as follows:

- Document (1) did not teach the advantageous ranges of amount of pesticides to be applied.

- Synergism was not properly disclosed in document (1). It neither disclosed synergistic effects when using thiamethoxam on transgenic corn seeds nor any supportive experimental data.
- Although thiamethoxam was known to have a broad activity against pests, it was also known to not properly control moderate to high rootworm infestations in the field.

V. In the annex to the invitation to the oral proceedings, the board cited the following documents:

- (2) US-A-5876739
- (3) WO-A-99/31248.

The board notified the appellant that the main request as well as the first and second auxiliary requests contravened Article 123(2) EPC and that none of the requests on file were inventive in view of the disclosure of document (2) as closest prior art.

VI. The appellant notified the board that it would not be attending the oral proceedings and requested a written decision. Oral proceedings took place on 22 September 2011 in the absence of the duly summoned appellant (Article 15(3) RPBA, OJ EPO, 1/2011, 38 to 49)

VII. The appellant requested in writing that the decision under appeal should be set aside and a patent be granted in the following version:

- 1) Claims 1 to 17 of the main request; or subsidiary
- 2) the claims of any of auxiliary requests 1 to 3,

all of the above requests being filed with the grounds of appeals under cover of a letter dated 15 January 2009.

VIII. At the end of the oral proceedings, the decision of the board was announced.

### **Reasons for the Decision**

1. The appeal is admissible.
2. Main and auxiliary requests 1 and 2.
  - 2.1 Claim 15 of the main request as well as claim 6 of the first auxiliary request and claim 9 of the second auxiliary request differ, in particular, from the subject-matter defined in claims 24 to 27 of the application as originally filed in that the expression "that provides increased resistance to the resulting corn plant against feeding damage by one or more pests" has been deleted. It should be assessed whether this amendment is in agreement with Article 123(2) EPC.
    - 2.1.1 By deleting this feature, the appellant is now claiming not only a seed of a transgenic corn plant that provides an increased resistance but also a seed of a transgenic corn plant that does not provide an increased resistance. The board was unable to find support in the application as originally filed for this amendment.
    - 2.1.2 The appellant argued in its statement setting out the grounds of appeal that a basis for the amendment is to

be found on page 8, lines 11-24; on page 11, lines 7-26 and page 12.

These passages cannot justify the amendment for the following reasons:

The passage on page 8 relates to a seed of a transgenic corn plant having an increased resistance but does not mention any seed of a transgenic corn plant which does not have this feature, contrary to the wording of claim 15 of the main request and claim 6 of the first auxiliary request and claim 9 of the second auxiliary request.

The passage referred to on page 11 relates to a seed having an exogenous gene derived from a strain of *Bacillus thuringiensis* and this gene must preferably encode Cry3 toxins. It is however further mentioned that "*...Nucleic acid segments that encode modified B. thuringiensis coleopteran-toxic crystal proteins that are useful in the present invention are described in U.S. Patent No. 6,606,594, and insect resistant transgenic plants that include nucleic acid sequences that encode such insecticidal proteins are discussed in U.S. Patent No. 6,023,013...*" (See page 11, lines 8 to 17). The rest of the cited passage refers to the preferred endotoxins and their nomenclature. This passage refers to insect resistant transgenic plants thus does not include the plants which are not resistant. Moreover, the encoding nucleic acid segments must be useful for the present invention. However, the present invention relates either to seed of a transgenic corn plant that provides increased resistance (see page 7, lines 8 to 13) or to a seed of

transgenic corn plant which has been protected by the method described in the present application (see page 7, lines 25 to 30 and lines 2 to 7). None of these passages mentions a seed of a transgenic corn plant not having an increased resistance and/or a protection against feeding damage as now embraced by the wording of claim 15 of the main request and claim 6 of the first auxiliary request and claim 9 of the second auxiliary request.

The disclosure of page 12 of the application as originally filed, as referred to by the appellant in its written statement, relates to the content of documents WO 99/31248 and U.S. Patent No. 6,063,597. This disclosure deals mainly with the different types of Cry3 delta-endotoxins but remains silent on a seed of a transgenic corn plant not having an increased resistance.

- 2.2 Hence, the main request and auxiliary requests 1 and 2 do not fulfil the requirements of Article 123(2) EPC.
3. Auxiliary request 3

The board considers that this request fulfils Articles 123(2) and 54 EPC. However, claim 1 of this request lacks an inventive step for the reasons exposed below.

#### Inventive step

- 3.1 Document (2) represents the closest prior art. It discloses an insecticidal coating for corn seed wherein the insecticide is thiametoxam (see claim 5 and col. 5, lines 7-14). The amount of insecticide will range



preferably from 0.05 to 20.0% of the weight of the seed, encompassing, therefore, the range defined in claim 1. Preferred targets include corn rootworm (col. 6, lines 6-7). The content of document (2) differs from the one of the claimed subject-matter in that the corn seed is not a transgenic corn seed.

3.2 Thus, the technical to be solved can be seen as the provision of a method that increases the resistance of transgenic corn plants against feeding damage by one or more pests.

3.3 The solution proposed by the present application is represented by the method described in claim 1.

3.3.1 The experimental data provided by the appellant shows a better protection for seeds having the transgenic event and treated with thiamethoxam than those treated with thiamethoxam but not having the transgenic event (see in the following table O/Lo versus T/Lo and O/Hi versus T/Hi in which Lo means a treatment in which 300 g of thiamethoxam have been applied to 100 kg of seeds and Hi means that 600 g of thiamethoxam have been applied to 100 kg of seeds). It thus appears from these results that severe damage (see levels 3-6) is reduced when treating a corn seed having the transgenic event compared to the corn seed without the said transgenic event (see O/Lo / T/Lo: 92/53 and O/Hi / T/Hi: 92/55).

TREATMENT	NUMBER OF PLANTS WITH DAMAGE AT LEVEL						
	1	2	3	4	5	6	3-6
O/O	0	0	32	74	44	27	100
T/O	5	45	109	16	4	1	72
O/Lo	1	13	80	78	7	1	92
O/Hi	1	15	115	50	11	7	92
T/Lo	4	84	77	22	0	0	53
T/Hi	7	82	83	20	6	0	55

<u>Treatment</u>	<u>Corn Seed Type</u>	<u>Pesticide and amount (grams AI/100 kg seed or mg ai/kernel)</u>
O/O	Isohybrid	None
T/O	Cry3Bb.11231	None
O/Lo	Isohybrid	ADAGE® @ 300 gm AI/100 kg or .75 mg AI/kernel
O/Hi	Isohybrid	ADAGE® @ 600 gm AI/ 100 kg or 1.5 mg AI/kernel
T/Lo	Cry3Bb.11231	ADAGE® @ 300 gm AI/100 kg or .75 mg AI/kernel
T/Hi	Cry3Bb.11231	ADAGE® @ 600 gm AI/ 100 kg or 1.5 mg AI/kernel

Although this data shows a better effect for the seeds of the present invention over the closest prior art, this effect cannot be considered as unexpected by the person skilled in the art in view of the disclosures of documents (2) and (3) for the following reasons:

- 3.3.2 Starting from document (2), the person skilled in the art trying to solve the problem underlying the present application would consider document (3), which aims at improving the resistance towards corn rootworm (see page 1, lines 8 to 11). This document relates to the production of improved genetically-engineered modified *Bacillus thuringiensis* endotoxins (see page 12, lines 27 to 30). Moreover, Document (3) teaches that a transgenic DNA segment encoding Cry3Bb\* crystal protein

can be incorporated into plants like corn (see page 54, lines 3 to 7). Furthermore, document (3) also mentions that these new proteins have improved effects (see page 60, lines 14 to 189 and that the Cry3Bb.11231 (identical to the protein used in the method of claim 1 of the third auxiliary request) is 7.9 time more active than the unmodified Cry3Bb (see Table 2, page 16, fourth entry).

Knowing this, the person skilled in the art not only could but also would replace the corn seed described in document (2) by the corn seed having the transgenic event Cry3Bb.11231 described in document (3) to arrive at the claimed invention and thereby obtaining an improved protective effect.

Hence, the improved effect shown by the experimental data provided by the appellant is not considered as the result of an inventive approach and cannot therefore show the presence of an inventive step.

- 3.3.3 The appellant's arguments based on the disclosure of document (1) are irrelevant, since this document does not represent the closest prior art the person skilled in the art would start from in order to solve the problem mentioned in point 3.2 above.

The appellant's assertion that thiamethoxam is able to control moderate to high corn rootworm infestations has not been substantiated and thus cannot be considered when assessing inventive step.

The synergistic effect relied upon by the appellant and reported in Table 2 of the experimental data cited

above, is not persuasive. In T 68/85 (OJ EPO 1987, 228, point 10) an agent resulting from the combination of herbicides Ia and Ib with compounds generically defined as II was claimed. In T 68/85, a prior art document (2) disclosed combinations of herbicides I other than Ia and Ib with **complementary** herbicides II. A further prior art document disclosed Ia and Ib alone but did not apparently disclose that Ia and Ib exhibited a better activity than herbicides I other than Ia and Ib. The board considered that a synergistic effect rendered the herbicidal agent non obvious.

In the present case, document (3) invites the person skilled in the art to replace the conventional corn seed by the transgenic corn seed (Cry3B.11231) (see point 3.3.2 above). Thus, an enhanced activity was expected.

- 3.4 The board thus concludes that claim 1 of auxiliary request 3 lacks an inventive step (article 56 EPC).

**Order**

**For these reasons it is decided that:**

1. The appeal is dismissed.

The Registrar

The Chairman

M. Schalow

P. Ranguis