

National Agrifood Health and Quality Service

FOOD

Resolution 412/2002

The “Principles and Criteria for the Assessment of Food derived from Genetically Modified Organisms,” the “Requirements and Rules of Proceedings for the Human and Animal Safety Assessment of Foods derived from Genetically Modified Organisms,” and the required information for such assessment are hereby approved. Glossary of topics.

Buenos Aires, May 10, 2002

WHEREAS, file No 18.012/2001 registered with the NATIONAL AGRIFOOD HEALTH AND QUALITY SERVICE, Resolutions No. 289 dated May 9, 1997 and No. 511 dated August 10, 1998, both issued by the former SECRETARY OF AGRICULTURE, LIVESTOCK, FISHERIES and FOOD, Minute No. 9 dated June 28, 2001 issued by the Advisory Commission on Biotechnology established under Resolution No. 1265 dated November 9, 1999 issued by such National Service, and

CONSIDERING:

That by Resolution No. 289 dated May 9, 1997 issued by the former SECRETARY OF AGRICULTURE, LIVESTOCK, FISHERIES and FOOD, the NATIONAL AGRIFOOD HEALTH AND QUALITY SERVICE (SENASA) is authorized to assess the safety of transgenic material and its derived products used as human food and animal feed;

That by Resolution No. 511 dated August 10, 1998 issued by the former SECRETARY OF AGRICULTURE, LIVESTOCK, FISHERIES and FOOD, requirements and criteria for the assessment of Genetically Modified Organisms have been approved;

That by Resolution No. 1265 dated November 9, 1999 issued by the NATIONAL AGRIFOOD HEALTH AND QUALITY SERVICE, the *ad-honorem* Technical Advisory Commission on the use of Genetically Modified Organisms was established;

That it is necessary to update the requirements and criteria governing applications for the authorization of Genetically Modified Organisms for food use;

That, among others, the following documents have been consulted: ALINORM 01/34A documents of the Codex Alimentarius: "REPORT ON THE SECOND SESSION OF THE CODEX AD HOC INTERGOVERNMENTAL TASK FORCE ON FOOD DERIVED FROM BIOTECHNOLOGY;" "PROPOSED DRAFT PRINCIPLES FOR THE RISK ANALYSIS OF FOOD DERIVED FROM MODERN BIOTECHNOLOGY" (Appendix II to the abovementioned Alinorm); and "PROPOSED DRAFT GUIDELINE FOR THE CONDUCT OF FOOD SAFETY ASSESSMENT OF FOODS DERIVED FROM

RECOMBINANT-DNA PLANTS" (Appendix III to the abovementioned Alinorm), both pertaining to Step 5 of Codex Procedure;

That the Technical Advisory Commission on Biotechnology, established by SENASA Resolution No. 1265/99, has been favorably dispatched;

That the Directorate of Agrifood Quality has been favorably dispatched;

That the Department of Legal Affairs has taken the corresponding measures within its jurisdiction and has not found any legal objections;

That the undersigning official has authority to take decisions at this stage under the powers conferred by Article 8, subsection e) Decree No. 1585 dated December 19, 1996, replaced by the similar Decree No. 394 dated April 1, 2001.

THEREFORE,

The President of the NATIONAL AGRIFOOD HEALTH AND QUALITY SERVICE

RESOLVES TO:

Article 1° — Approve the "Principals and Criteria for the Assessment of Food derived from Genetically Modified Organisms," which attached as Annex I, are an integral part of this present resolution.

Article 2° — Approve the "Requirements and Rules of Procedure for Human and Animal Safety Assessment of Foods derived from Genetically Modified Organisms" to be complied with by the obtainers of events using modern biotechnological techniques and which, attached as Annex II, are an integral part of this present resolution.

Article 3° — Approve the "Information Required for the Human and Animal Safety Assessment of Foods derived from Genetically Modified Organisms" to be contributed to by the obtainers of events using modern biotechnological techniques and which, attached as Annex III, is an integral part of this present resolution.

Article 4° — Approve the "Glossary" to be only used in this present resolution and which, attached as Annex IV, is an integral part of this present resolution.

Article 5° — Limit the effects of Resolution No. 511 dated August 10, 1998 issued by the former SECRETARY OF AGRICULTURE, LIVESTOCK, FISHERIES AND FOOD.

Article 6° — Be it made known, published, remitted to National Direction to the Official Registry, and filed.
— Bernardo G. Cané.

ANNEX I

PRINCIPLES AND CRITERIA FOR THE ASSESSMENT OF FOOD DERIVED FROM GENETICALLY MODIFIED ORGANISMS

- 1) In many cases, the level of food safety generally accepted by society reflects a history of safe human consumption. In a great number of cases, information necessary to handle food-associated risks has been collected through its history of safe use. In general, foods are considered safe when the necessary precautions are taken during growth, primary production, manufacture, storage, handling, and preparation.
- 2) The food-associated risks undergo a risk analysis process intended to assess potential risks and, if necessary, to create control methods.
- 3) Even though risk analysis has been used for a long time to handle chemical risks (for example pesticide residue, contaminants, food additives, and processing aids) and has been increasingly used in relation to microbiologic risks and nutritional factors, its principles have not been specifically designed for whole foods.
- 4) The risk analysis method, in general terms, may be applied to foods including those derived from Modern Biotechnology. Nonetheless, it has been acknowledged that this method has to be modified when applied to whole foods and not when applied to particular risks that may be present in food products.
- 5) The aim of the risk analysis principles is to offer a framework for conducting the risk analysis regarding nutritional and safety aspects of food derived from Modern Biotechnology.
- 6) The process of risk analysis of foods derived from Modern Biotechnology shall be consistent with the Principles for Practical Application, that is:
 - a) Risk Assessment
 - b) Risk Management
 - c) Risk Communication
- 7) Before its commercial release, a safety assessment of the food shall be conducted on a case-by-case basis following an integrated and structured method. The data and information, which should be enough in quality and quantity as to allow a scientific assessment, shall be based on sound scientific principles obtained by using appropriate methods and analyzed with adequate statistical techniques.
- 8) The risk assessment includes a safety assessment to determine whether there is any risk or concern regarding the nutritional or any other safety aspect; if there is risk, to collect information on its nature and importance. The safety assessment shall include a comparison between the food derived from Modern Biotechnology and its conventional counterpart focused on their similarities and differences.
- 9) The safety assessment includes the evaluation of a whole food or a food ingredient in relation to its appropriate conventional counterpart and:
 - a) The consideration of intended and unintended effects;
 - b) The identification of new or altered risks; and
 - c) The identification of changes occurred in key nutrients that are important to human health.
- 10) Scientific data for risk assessment are generally obtained from a wide variety of sources, such as the breeder, scientific literature, general technical information, independent scientists, regulatory agencies, international organisms, and other interested parties. Data shall be assessed with appropriate scientifically-based risk assessment methods.
- 11) Risk management measures to be applied to food derived from Modern Biotechnology shall be proportional to the risk and based on the assessment results.
- 12) The risk management shall take into account uncertainties identified in the assessment and shall take the appropriate management actions.

13) Post-market monitoring shall be an appropriate risk management measure under specific circumstances. Its need and importance shall be considered on a case-by-case basis during the risk assessment process and also, if feasible, during risk management. The purposes of post-market monitoring are:

a) To verify conclusions on the potential absence or presence, impact and importance of potential effects on consumer health; and

b) To monitor changes in the consumption level of nutrients, related to the introduction of the foods that might significantly alter the nutritional status to determine their impact on human health.

14) Based on a consistent criterion to characterize and control nutritional and safety risks associated to foods derived from Modern Biotechnology, the acceptable risk level for such foods shall be consistent with that of similar foods already in the market.

15) Considering the fast development of biotechnology, the safety assessment criteria for food derived from Modern Biotechnology shall be reviewed, when necessary, to ensure that the most recent scientific information is included in the risk analysis. If there is new scientific information of interest for the risk assessment, it shall be reviewed so that said information is included and, if necessary, risk management measures shall also be modified.

16) Traditionally, new varieties of food plants have not been subjected to extensive chemical, toxicological, or nutritional evaluation prior to marketing, with the exception of foods for specific groups, such as infants, where the food may constitute a substantial portion of the diet. Thus, new varieties of corn, soybean, potatoes and other common food plants are evaluated by breeders for agronomic and phenotypic characteristics, but generally, foods derived from such new plant varieties are not subjected to the rigorous and extensive food safety testing procedures, including studies in animals, that are typical of chemicals such as food additives or pesticide residues that may be present in food.

17) The use of animal models for assessing toxicological endpoints is a major element in the risk assessment of many compounds such as pesticides. In most cases, however, the substance to be tested is well characterized, of known purity and of no particular nutritional value, and human exposure to it is generally low. It is therefore relatively straightforward to feed such compounds to animals at a range of doses some several orders of magnitude greater than the expected human exposure levels in order to identify any potential adverse health effects of importance to humans. In this way, it is possible, in most cases, to estimate levels of exposure at which adverse effects are not observed and to set safe intake levels by the application of appropriate safety factors.

18) Animal studies cannot readily be applied to testing the risks associated with whole foods, which are complex mixtures of compounds, often characterized by a wide variation in composition and nutritional value. Due to their bulk and effect on satiety, they can usually only be fed to animals at low multiples of the amounts that might be present in the human diet. In addition, a key factor to consider in conducting animal studies on foods is the nutritional value and balance of the diets used in order to avoid the induction of adverse effects, which are not directly related to the material itself. Detecting any potential adverse effects and relating these conclusively to an individual characteristic of the food can therefore be extremely difficult.

19) Due to the difficulties of applying traditional toxicological testing and risk assessment procedures to whole foods, a more focused approach is required for the safety assessment of foods derived from GMOs. This has been addressed by the development of a multidisciplinary approach for assessing safety that takes into account both intended and unintended changes that may occur in the plant or in the foods derived from it: the concept of substantial equivalence.

20) The concept of substantial equivalence is a key step in the safety assessment process. However, it is not a safety assessment in itself; rather it represents the starting point used to structure the safety assessment of a new food relative to its conventional counterpart. This concept is used to identify similarities and differences between the new food and its conventional counterpart; it aids in the identification of potential safety and nutritional issues and is considered the most appropriate strategy to date for safety assessment of foods derived from genetically modified plants. The safety assessment carried out in this way does not imply absolute safety of the new product; rather, it focuses on assessing the safety of any identified differences so

that the safety of the new product can be considered in comparison to its conventional counterpart. To these purposes, the following shall be considered:

- a) A genetically modified organism and/or food product/s derived from it is/are substantially equivalent to the conventional counterpart.
- b) A genetically modified organism and/or the food product/s derived from it is/are substantially equivalent to its conventional counterpart except for a few clearly defined differences.
- c) A genetically modified and/or the food product/s derived from it is/are not substantially equivalent to its conventional counterpart, whether because differences could not be defined or because there would not be a conventional counterpart to which compare it.

21) In achieving the objective of conferring a specific target trait (intended effect) to a plant by the insertion of defined DNA sequences, it may happen that additional traits are acquired or rather existing traits could be lost or modified (unintended effects). The likelihood of occurrence of unintended effects is not exclusively restricted to recombinant DNA techniques; rather, it is an inherent and general phenomenon that can also occur in conventional breeding. Unintended effects may be deleterious, beneficial, or neutral with respect to the phenotype of the organism or the safety of food derived from it.

22) Unintended effects may result from the random insertion of DNA sequences into the genome of the recipient that may cause disruption or silencing of existing genes, activation of silent genes, or modification in the expression of existing genes. Unintended effects may also result in new or changed patterns of metabolites. For example, the expression of enzymes at high levels may give rise to secondary biochemical effects or changes in the regulation of metabolic pathways and /or altered levels of metabolites.

23) Unintended effects resulting from the genetic modification may be subdivided into TWO (2) groups: those that are “predictable” and those that are “unexpected”. Many unintended effects are largely predictable based on the knowledge of the inserted trait and its metabolic connections or of the site of insertion. Molecular biological and biochemical techniques can also be used to analyze changes at the level of genetic transcription and message translation that could lead to unintended effects.

24) The safety assessment of foods derived from genetically modified plants involves methods to identify such unintended effects and procedures to evaluate their biological relevance and potential impact on food safety. A variety of data and information is necessary to assess unintended effects because no individual test can detect all possible unintended effects or identify with certainty those relevant to human health. The data and information, when considered in total, should provide assurance that the food is unlikely to have an adverse effect on human health. The assessment of unintended effects considers the agronomic/phenotypic characteristics of the plant typically observed by breeders in the selection of new varieties for commercialization. These observations provide a first screen for plants that exhibit unintended traits. The new varieties that pass this screen are subjected to safety assessment.

25) *In vitro* nucleic acid techniques enable the introduction of DNA that can result in the synthesis of new substances in plants. The new substances can be conventional components of plant foods such as proteins, fats, carbohydrates, and vitamins. Conventional toxicology studies may not be considered necessary when the substance or a closely related substance has, considering its exposure, been safely consumed in food.

26) In other cases the use of conventional toxicology or other studies on the new substance may be necessary. This may require the isolation of the new substance from the genetically modified plant, or the synthesis or production of the substance from an alternative source, in which case, the material should be known to be biochemically, structurally, and functionally equivalent to that produced in the recombinant-DNA plant.

27) The safety assessment of the newly expressed substance should identify the concentration of the substance in the edible parts of the genetically modified plant, including, if appropriate, variations and mean values.

28) In the case of proteins, the assessment of potential toxicity should focus on the similarity in the amino acid sequence of the assessed protein and of known toxins and anti-nutrients as well as in stability to heat or

processing and to degradation in appropriate gastric and intestinal model systems. Appropriate oral toxicity studies may need to be carried out in cases where the protein present in the food is not similar to proteins that have previously been safely consumed in food. Current dietary exposure and possible effects on population sub-groups should be also considered.

29) It should be demonstrated that the expressed trait has no relation to the characteristics of the donor organism that could be harmful to human health. Information should be provided to ensure that genes coding for known toxins or anti-nutrients present in the donor organism are not transferred to genetically modified plants that usually do not express those toxic or anti-nutritious characteristics. This assurance is particularly important in cases when a genetically modified plant is processed differently from a donor plant, since conventional food processing techniques, associated with the donor organism may deactivate, degrade, or eliminate anti-nutrients or toxicants.

30) Additional *in vitro* or *in vivo* studies may be necessary to assess the toxicity of expressed substances in specific cases. The requested studies would depend on the source of the expressed substances and their biological function. These studies may include studies on metabolism, toxicokinetics, chronic toxicity/carcinogenicity, effects on the reproductive function, and teratogenicity.

31) The safety assessment shall consider the potential accumulation of any substances, toxic metabolites, contaminants, or pesticides that might derive from the genetic modification.

32) Whenever the protein or proteins resulting from the inserted gene are present in foods, an assessment of potential allergenicity is necessary.

33) The assessment of potential allergenicity of the protein or newly expressed substance should be based on a combination of various criteria (as a single criterion is not productive enough).

34) The transfer of genes from commonly allergenic foods and from foods known to elicit gluten-sensitive enteropathy in sensitive individuals should be avoided unless it is documented that the transferred gene does not code for an allergen or for a protein involved in gluten-sensitive enteropathy.

35) The newly expressed proteins in foods derived from genetically modified plants should be evaluated for any possible role in the elicitation of gluten-sensitive enteropathy if the introduced genetic material is obtained from wheat, rye, barley, oat, or related cereal grains.

36) Analyses of concentration of key components of the GMO, especially those typical of the food, should be compared with an equivalent analysis of a conventional counterpart grown and harvested under the same conditions. A further comparison may need to be considered (e.g. insertion of herbicide resistance in plants) when changes in management practices inherent to the GMO occur.

37) In this context, comparisons will be carried out using the different genetic backgrounds representative of the commercial germplasm produced from the species in question. The purpose of this comparison is, on the one hand, to establish that the substances that are nutritionally important or that can affect the safety of the food have not been altered in a manner that would have an adverse impact on human health. On the other hand, the purpose of this comparison is to establish whether or not such modifications could be associated to interactions between the event and different genetic backgrounds.

38) The location of trial sites and the management practices chosen to carry out the comparison testing previously mentioned should be representative of the range of environmental and technological conditions under which the organism is grown (or is foreseen to be commercially grown).

39) Trials should be conducted over a sufficient number of generations and/or environmental conditions to allow adequate exposure to the variety of conditions met in nature. To minimize environmental effects and to reduce any effect determined by the genotypic variation, each trial site should be replicated. The experiment design, size of units, sub-sampling, and number of replications should be adequate to accomplish previously stated objectives and criteria. The methods of analysis should be sensitive and specific enough to detect

variations in key components. A combined statistical analysis by location, environmental condition, and genetic background should be presented. The “Alpha” (type I error probability) for each comparison and for all experiments should also be presented. The statistical significance of any observed differences should be assessed in the context of the range of natural variations for such parameter to determine its biological relevance.

40) Some organisms may have been modified in a manner that could result in new or altered levels of various metabolites in the food. Consideration should be given to the likelihood of the accumulation of metabolites that could have an adverse effect on human health. The safety assessment of such organisms requires the investigation of residue and metabolite level in the food and the assessment of any alterations in the nutrient profile. When altered residue or metabolite levels are identified in foods, consideration should be given to the potential impacts on human health using conventional procedures for establishing the safety of such metabolites.

41) The potential effects of food processing, including home preparation, should also be considered. The potential alterations in the heat stability of an endogenous toxicant or the bioavailability of macro- and micro-nutrients should be verified.

42) The assessment of likely compositional changes to key nutrients should be conducted for all genetically modified plants. Foods derived from plants that have undergone modification to intentionally alter the nutritional quality or functionality should be subjected to additional nutritional assessment to evaluate the consequences of the changes and whether the nutrient intakes are likely to be altered by the introduction of such foods into the food supply.

43) Information about the known patterns of use and consumption of a food and its derivatives should be used to estimate the likely intake of the food derived from a GMO. The expected intake of the food should be used to assess the nutritional implications of the altered nutrient profile both at customary and maximal levels of consumption. Basing the estimate on the highest likely consumption provides assurance that the potential for any undesirable nutritional effects will be detected. Attention should be paid to the particular physiological characteristics and metabolic requirements of specific population groups such as infants, children, pregnant and lactating women, the elderly, and those with chronic diseases or compromised immune systems. Based on the analysis of nutritional impacts and the dietary needs of specific population subgroups, additional nutritional assessment may be necessary. It is also important to ascertain to what extent the modified nutrient is bioavailable and remains stable with time, processing and storage.

44) The use of plant breeding, particularly *in vitro* nucleic acid techniques, to change nutrient levels in crops can result in broad changes to nutrient profile in TWO (2) ways: the intended modification in plant constituents could change the overall nutrient profile of the plant product, and this change could affect the nutritional status of individuals consuming the food. Unexpected alterations in nutrients could have the same effect. Although the genetically modified plant may be individually assessed as safe, the impact on the overall nutrient profile should be determined.

45) When the modification results in a food product with a composition that is significantly different from its conventional counterpart, it may be appropriate to use additional conventional foods (i.e., foods whose nutritional composition is closer to that of the food derived from the genetically modified plant) as appropriate comparators to assess the nutritional impact of the food.

46) Because of geographical and cultural variations in food consumption patterns, nutrient changes to a specific food may have greater impact in some geographical areas or in some cultural groups of population than in others. Some food plants serve as the major source of a particular nutrient in some populations. The nutrient and the population affected should be identified.

47) Some foods may require additional testing. For example, *in vivo* studies may be warranted for foods derived from genetically modified plants if changes in the bioavailability of nutrients are expected or if the composition is not comparable to conventional foods. Also, foods designed for health benefits may require specific nutritional, toxicological, or other appropriate studies.

48) If the characterization of the food indicates that the available data are insufficient for a thorough safety assessment, properly designed animal studies on the whole foods may be requested.

49) Gene transfer from plants and their food products to gut microorganisms or human cells is considered a rare possibility. Nevertheless, the possibility of such events cannot be completely discounted.

50) In assessing the safety of food containing antibiotic marker genes, the following factors should be considered:

- a) Marker genes encoding resistance to antibiotics should not be used in genetically modified plants, as certain antibiotics are the only drug available to treat some clinical conditions;
- b) Whether the presence in food of the enzyme or protein encoded by the antibiotic resistance marker gene would compromise the therapeutic efficacy of the orally administered antibiotic;
- c) Safety of the gene product, as would be the case for any other expressed gene product; and
- d) If the evaluation of the data and information suggests that the presence of the antibiotic resistance marker gene or gene product presents risks to human health, the marker gene or gene product should not be present in the food. In general, antibiotic resistance genes used in food products that encode resistance to clinically used antibiotics should not be present in foods.

51) The goal of the safety assessment is a conclusion as to whether or not the new food is as safe as and has the same nutritional value as its conventional counterpart.

52) The safety assessment should be reviewed in the light of new scientific information that calls into question the conclusions of the original safety assessment.

ANNEX II

REQUIREMENTS AND RULES OF PROCEEDING

The applicant shall meet the following requirements:

- 1) Introductory letter explaining the purpose of the event
- 2) Application form
 - a) Name or corporate name of institution
 - b) Legal address in Argentina
 - c) Current address in Argentina
 - d) First name, last name, profession and personal information of technologist in charge
 - e) First name, last name, and personal information of legal representative
- 3) Applicant's statement based on records and studies conducted in relation to the safety of the event as human food and animal feed, without objections or limitations of use in relation to the counterpart.
- 4) Submission of a monitoring system project for the genetic stability of the event and its expression to verify the structural and functional identity of the event as approved in the overall marketing process.
- 5) Statement by which the breeding institution is committed to withdraw from the market products directly derived from the event, if required by SENASA, due to reasonable causes.
- 6) Records of the approval of the event in other countries and the identification of the country, agency, or government organism that has approved it, or if in process, the application; which should include the date of submission.
- 7) Those studies submitted shall include: Title, summary, objectives, materials and methods, results, discussion of results, conclusions, bibliography, and background of the breeder.
- 8) Language: all submissions, records, summary, research conclusions, and application shall be submitted in Spanish. Research work conducted abroad shall be accepted in both Spanish and English. Should the work be in English, titles, objectives, summaries, and conclusions should also be in Spanish.
- 9) If information requested in this application is confidential, such information shall be presented in a different envelope so identified, which will safely kept by SENASA Agrifood Quality Directorate. Confidential information shall be studied by one or more experts appointed by the Commission. Afterwards, a report analyzing the information shall be prepared and presented to the Commission with the reasons supporting the opinion.
- 10) In addition to the abovementioned requirements, which shall be presented in writing and duly signed, items 1, 2, 3, 4, 5, 6, and 8 (for item 8, the Spanish section only) shall also be submitted in an electronic format compatible with known programs.

ANNEX III

REQUIRED INFORMATION

1. Organism subject to control

- 1.1 Scientific name
- 1.2 Common name
- 1.3 Pathogenic characteristics
- 1.4 History of food use
- 1.5 Description of recipient genotype (line, variety, cultivar).

2. Donor organisms

- 2.1 Scientific name
- 2.2 Common name
- 2.3 Pathogenic characteristics
- 2.4 History of food use

3. Characterization of the event

- 3.1 Inserted characteristics. Biological function
- 3.2 Insertion methods

4. Breeder

- 4.1 Name, corporate name, and/or institution
- 4.2 Address
- 4.3 Other information: telephone number, fax number, electronic mail, etc.
- 4.4 Person in charge of research. Name, address, and other information

5. Nucleotide sequences

- 5.1 Map of vector used including details on construction
- 5.2 Principal gene/s
- 5.3 Gene/s or accompanying sequence/s (promoters, termination signals, introns, others)
- 5.4 Number of inserts, complete and incomplete, their sequences and flanking areas
- 5.5 Sequence specific primers
- 5.6 Genetic stability

6. Expression Products

- 6.1 Identification of expression products
- 6.2 Characteristics and biological activity
- 6.3 Patterns and expression levels in different tissues and in the ontogenic stages

7. Nutritional characteristics

- 7.1 Qualitative and quantitative chemical composition of the GMO, foods derived from it (if applicable), and conventional counterpart. Nutrients and anti-nutrients should be compared. Other components may be requested according to the GMO
- 7.2 Bioavailability of nutrients. Specific criterion that may be requested when events are classified as non-substantially equivalent (if necessary)

8. Allergenicity

- 8.1 Identification of known allergens in donor and recipient species
- 8.2 Similarity of the new expression products with known allergens
- 8.3 Other potentially allergenic characteristics: molecular weight, levels in the food, resistance to processing (heat and others), *in vitro* digestibility

9. Toxicity

- 9.1 Identification of known toxins naturally present in donor and recipient species
- 9.2 Identification of new substances with toxic activity qualified by the transgene/s
- 9.3 Similarity between expression products and known toxins

9.4 Acute toxicology testing in animals of the new proteins with no food history

9.5 Subchronic or chronic toxicology testing of new proteins (if applicable)

9.6 Subchronic or chronic toxicology testing of whole food (if applicable)

10. Safety of the GMO food or its food derivatives when the GMO is not a food. Functional characterization of the GMO, foods derived from it (if applicable), and conventional counterpart (food testing in animals)

11. Modifications in use, processing, or manufacturing. State whether, to be consumed, the new event would require processing or manufacturing methods somehow different from those used for the conventional counterpart.

ANNEX IV

GLOSSARY

Genetically Modified Organism: Organism with genetic information acquired through recombinant-DNA techniques.

Transformation Event: Stable insertion of ONE (1) or more defined genetic constructs into the genome.

Conventional Counterpart or Counterpart: These are germplasm genotypes, the species in question, its components and/or products that have been proved to be safe based on their use as food. Such genotypes include, but are not limited to, genotype/s originally used in the transformation process.

Concept of Substantial Equivalence:

Substantial Equivalence: Concept used to identify similarities and differences between the food derived from a GMO and its conventional counterpart, which has a history of safe use as food.

The concept of substantial equivalence: Important component in the risk analysis of foods derived from GMOs, as it is the starting point.

This comparative approximation can lead to any of the following possibilities:

- It is possible to prove that the GMO, the food, or the food ingredient derived from it is substantially equivalent to the already existing conventional counterpart.
- It is not possible to prove the substantial equivalence but the GMO, food, or food ingredient derived from it is substantially equivalent to the already existing conventional counterpart with the exception of certain definite differences.
- It is not possible to prove that the GMO, food, or food ingredient derived from it is substantially equivalent to the already existing counterpart, whether because differences would not be clearly defined or because there would not be a conventional counterpart for comparison.