

5.2 Geneticky modifikované organizmy a jejich produkty na trhu potravin v ČR

a.

Souhrn

Rok 2013 byl dvanáctým rokem, kdy probíhala studie "GENOMON" zaměřená na sledování výskytu příměsí geneticky modifikovaných organismů v potravinách v rámci monitoringu dietární expozice.

Ve čtyřech odběrových termínech byly ve 24 lokalitách v ČR odebrány v obchodní síti vzorky 4 druhů potravin, u nichž je pravděpodobnost použití surovin z geneticky modifikovaných organismů (GMO) nejvyšší. Celkem bylo v roce 2013 odebráno a analyzováno 192 vzorků (48 vzorků rýže, 48 vzorků sójových bobů, 48 vzorků sójových výrobků a 48 vzorků kukuřičné mouky). K detekci GMO a potravin nového typu byla využita kvalitativní screeningová a identifikační metoda polymerázové řetězové reakce (dále PCR).

Z celkového počtu 192 analyzovaných vzorků potravin na přítomnost DNA z GMO bylo vyhodnoceno jako GMO pozitivní 7 vzorků kukuřičné mouky, 6 vzorků rýže a 2 vzorky sojových bobů.

Ve vzorcích kukuřičné mouky byla prokázána identifikační metodou PCR přítomnost geneticky modifikované kukuřice linie MON810 (ve 3 vzorcích). U ostatních 4 vzorků kukuřičné mouky se nepodařilo identifikovat typ genetické modifikace. U pozitivních vzorků rýže nebyla prováděna identifikace modifikace.

Ve dvou vzorcích sójových bobů byla prokázána přítomnost geneticky modifikované Roundup Ready sóji.

Získané výsledky jsou uvedeny v tabulce č. 1.

Tab. 1: Výskyt GMO v potravinách v roce 2013

| Materiál / Material | Počet vzorků Sample size | Positivní nálezy (%) Positive findings (%) | Negativní nálezy (%) Negative findings (%) |
|---------------------------------------|-------------------------------------|---|---|
| Sójové boby / <i>Soya beans</i> | 48 | 2 (4,2) | 46 (95,8) |
| Sójové výrobky / <i>Soya products</i> | 48 | 0 (0,0) | 48 (100,0) |
| Rýže / <i>Rice</i> | 48 | 6 (14,3) | 42 (85,7) |
| Kukuřičná mouka / <i>Cornflour</i> | 48 | 7 (14,6) | 41 (85,4) |
| Celkem / Total | 192 | 15 (7,8) | 177 (92,2) |

Kvalitativní PCR stanovení použité při analýzách dosahuje meze stanovitelnosti 0,1% přítomnosti surovin z geneticky modifikovaného organismu. Od roku 2004 se nemusí značit produkty, které neobsahují více než 0,9 % příměsí GMO schválených pro uvedení do oběhu, pokud jsou tyto příměsí náhodné nebo z technického hlediska nevyhnutelné. Žádná z vyšetřených potravin nebyla označena ve smyslu obsahu GM surovin.

V průběhu monitorovacího roku nebyly publikovány žádné nové vědecké poznatky, které by označovaly zdravotní rizika vyplývající z použití potravin na bázi GMO.

b. **Spolupracující organizace a odborníci**

Státní zdravotní ústav, Centrum zdraví, výživy a potravin v Brně (Prof. MVDr. Jiří Ruprich, CSc., Doc. MVDr. Vladimír Ostrý, CSc., Ing. Veronika Kýřová, Ph.D., Ing. Barbora Jílková, Ph.D., Ivana Procházková).

c. **Základní informace**

Pojem genetická modifikace, tj. vnášení nových genů do genomu cílového organismu, umožňují zlepšení výnosů prostřednictvím jejich ochrany proti plevelům, nemocem a škůdcům a v budoucnu jistělepší i nutriční hodnotu potravin. Na trhu se objevují především geneticky modifikované organismy (dále GMO), které zahrnují především zlepšení vlastností pro producenty. Nejčastějším znakem pěstovaných geneticky modifikovaných plodin je tolerance k herbicidům či odolnost vůči hmyzím škůdcům. V současné době vzrůstá zájem především o plodiny pro technické účely (např. výroba biopaliv, technického škrobu).

Veřejnost, především v zemích Evropy, se obává negativních dopadů využití moderních biotechnologií. Potencionální rizika je možno zařadit do dvou skupin: 1) vliv na zdraví lidí a zvířat a 2) možné důsledky pro životní prostředí (ohrožení biodiverzity při uvolňování živých modifikovaných organismů do prostředí). Proto veřejnost žádá důvěryhodné informace o vlastnostech, ale i šíření GMO na trhu s potravinami.

Rok 2013 byl dvanáctým rokem studie "GENOMON", zaměřeným na sledování výskytu potravin, které byly vyrobeny z geneticky modifikovaných organismů. Ve studii, kterou lze chápat také jako určitý stupeň nezávislého tzv. post-market monitoringu, jsme se zaměřili na průkaz GMO a potravin vyrobených na bázi GMO nakoupených v tržní síti ČR, s cílem získat informace o frekvenci výskytu potravin vyrobených z GMO v ČR.

Analýza byla provedena u 192 individuálních vzorků potravin, které byly svázeny z 24 míst republiky (region A = Jindřichův Hradec, Plzeň, Milevsko, Bechyně, Opařeny, Benešov, region B = Světlá nad Sázavou, Holčův Jeníkov, Habry, Louny, Mladá Boleslav, Praha, region C = Svitavy, Karviná, Hradec Králové, Lipník nad Bečvou, Chropyně, Radslavice, region D = Brno, Napajedla, Staré Město, Buchlovice, Hodonín, Třebíč).

Podle vyhlášky č. 113/2005 Sb. o označování potravin, ve znění pozdějších předpisů, musí být potravina, která je geneticky modifikovaným organismem nebo jej obsahuje, na obalu označena slovy "*obsahuje geneticky modifikovaný organismus*" a *identifikačním kódem použité modifikace při šlechtění*. Potravina vyrobená z geneticky modifikovaného organismu, která jej již neobsahuje a která není rovnocenná existující potravine, se označí slovy "vyrobena z geneticky modifikované (-ho)...“následovanými názvem použité suroviny. U jednosložkových potravin se slova "vyrobena z geneticky modifikované (-ho)..." uvedou zřetelně viditelná na etiketě. Nemusí se značit produkty, které neobsahují více než 0,9 % příměsí GMO schválených pro uvedení do oběhu, pokud jsou tyto příměsí náhodné nebo z technického hlediska nevyhnutelné (zákon č. 78/2004 Sb. v pozdějším znění a vyhláška č. 209/2004 Sb., nařízení Evropského parlamentu a rady č. 1829/2003, 1830/2003, 1946/2003). Žádná z vyšetřovaných potravin nebyla označena podle výše uvedeného schématu.

d. **Použitá metodika**

Analýza GMO a potravin na bázi GMO byla provedena s využitím molekulárně biologických metod (polymerázové řetězové reakce-PCR) k detekci vneseného genetického materiálu do DNA hostitele.

Metoda PCR

PCR metody slouží pro diagnostiku specifických sekvencí DNA. Tato metoda umožňuje in vitro zmnožení vybraného úseku DNA, který se nachází mezi dvěma místy o známé sekvenci nukleotidů. Jako cílová sekvence může vystupovat veškerá vnesená DNA – tj. promotor, samotný gen, terminátor nebo genový marker, použitý pro selekci

transgenních organismů. V našem případě byla pro detekci geneticky modifikovaných potravin a plodin využita screeningová a identifikační PCR metoda.

Zabezpečení kvality práce

Metody použité ve studii „GENOMON“ byly validovány. Zkoušky byly akreditovány u Českého institutu pro akreditaci (ČIA) podle normy ČSN EN ISO/IEC 17025. Metody jsou zpracovány do formy *Standardních operačních postupů (SOP)*. Při práci jsou používány certifikované referenční materiály, testovací materiály a laboratoř GMO se pravidelně účastní mezinárodních mezilaboratorních porovnávacích zkoušek (GeMMA).

Strategie analytického postupu

Pro analýzu byly vybrány potraviny, které podle mezinárodních přehledů připadají nejčastěji v úvahu z hlediska obsahu DNA pocházejících z GMO. Jedná se především o rýži, sóju a sójové výrobky a kukuřičné výrobky. Vzorky rýže byly vyšetřeny pomocí screeningové PCR, zaměřené na obecně se vyskytující nové geny ve více typech GMO (35S, NOS). Vzorky potravin na bázi sóji byly vyšetřeny pomocí identifikační PCR zaměřené na specifický typ GMO (RoundupReady sója GTS-40-3-2). Vzorky kukuřičné mouky byly vyšetřeny pomocí screeningové a identifikační metody PCR zaměřené na specifický typ GMO (35S, NOS, MON810, Bt176, Bt11, T25, NK603, Bt10, GA21, StarLink). Tento analytický postup umožňuje záchyt v ČR/EU povolených GMO, ale s jistou pravděpodobností i dalších. Identifikační PCR stanovení pak umožňuje odlišení povolených a nepovolených produktů (RR sója, určité typy kukuřice). Tabulka č. 2 shrnuje použitou strategii analytického postupu. V příloze č. 1 této kapitoly je seznam GMO dle dostupných mezinárodních údajů (databáze AGBIOS), které přicházejí u jednotlivých druhů v úvahu z hlediska výskytu na trhu s potravinami.

Tab. 2: Použitá strategie analytického postupu.

| Typ vzorku | Screeningová PCR (gen) | Identifikační PCR (DNK, primer) |
|-----------------|------------------------|--|
| Sójové bobý | 35S, NOS | RR sója (35S-f2, petu-r1) |
| Sójové výrobky | 35S, NOS | RR sója (35S-f2, petu-r1) |
| Kukuřičná mouka | 35S, NOS | <ul style="list-style-type: none"> • BT11 (IVS2-2, PAT-B) • BT176 (Cry03, Cry04) • T25 (T25-F7, T25-R3) • MON810 (VW01, VW03) • NK603 (NK603-1, NK603-2) • Bt10 (JSF5, JSR5) • GA21(Ga21 1–5, Ga21 1–3) • StarLink (CBH02, CM03) |
| Rýže | 35S, NOS | |

e.

Výsledky laboratorní analýzy

Z celkového počtu 192 analyzovaných vzorků potravin na přítomnost DNA z GMO bylo vyhodnoceno jako GMO pozitivních 7 vzorků kukuřičné mouky, 6 vzorků rýže a 2 vzorky sojových bobů.

Ve vzorcích kukuřičné mouky byla prokázána identifikační metodou PCR přítomnost geneticky modifikované kukuřice linie MON810 (ve 3 vzorcích). U ostatních 4 vzorků kukuřičné mouky se nepodařilo identifikovat typ genetické modifikace. V 6 pozitivních vzorcích rýže nebyl typ genetické modifikace také došetřen. Ve dvou vzorcích sojových bobů byla prokázána přítomnost geneticky modifikované Roundup Ready sóji.

f.

Závěr

Při hodnocení výsledků studie je nutné vzít v potaz současné technické možnosti. Kvalitativní PCR stanovení použité při analýzách dosahuje meze stanovitelnosti 0,1% přítomnosti surovin z geneticky modifikovaného organismu. Značení výrobků je povinné od 0,9%. V průběhu roku 2013 nebyly publikovány žádné nové aktuální vědecké údaje, které by popisovaly zdravotní rizika z použití potravin na bázi GMO.

V ČR je povoleno uvádět do oběhu ty potraviny na bázi GMO, které jsou povoleny v EU, viz. příloha č. 2 (zdroj: http://ec.europa.eu/food/dyna/gm_register/index_en.cfm)

Výsledky potvrzují, že se v obchodní síti v ČR vyskytují i potraviny obsahující geneticky modifikované organismy. Na trhu se začínají více vyskytovat potraviny, které obsahují nepovolené GMO (rýže).

Příloha č.1

Přehled odrůd rostlin připravených pomocí rekombinantních technologií (GMO) a odrůd spadajících do kategorie „nového typu“, ale získaných „tradičními“ metodami šlechtění, které jsou vedeny v mezinárodně dostupné databázi AGBIOS (<http://www.agbios.com/>).

| Počet | ID | Firma | Molekulární diagnostika* | Popis GMO |
|-----------------|------------------------------|---|---|--|
| Sója | | | | |
| 1 | A2704-12, A2704-21, A5547-35 | Aventis CropScience | 35S | Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces viridochromogenes</i> . |
| 2 | A5547-127 | Bayer CropScience (Aventis CropScience(AgrEvo)) | 35S | Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces viridochromogenes</i> . |
| 3 | G94-1, G94-19, G168 | DuPont Canada Agricultural Products | 35S, NOS | High oleic acid soybean produced by inserting a second copy of the fatty acid desaturase (GmFad2-1) encoding gene from soybean, which resulted in "silencing" of the endogenous host gene. |
| 4 | GTS 40-3-2 | Monsanto Company | 35S, NOS, RRS-HT-P/C, EPSPS real time PCR | Glyphosate tolerant soybean variety produced by inserting a modified 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) encoding gene from the soil bacterium <i>Agrobacterium tumefaciens</i> . |
| 5 | GU262 | Bayer CropScience (Aventis CropScience(AgrEvo)) | 35S | Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces viridochromogenes</i> . |
| 6 | OT96-15 | Agriculture & Agri-Food Canada | | Low linolenic acid soybean produced through traditional cross-breeding to incorporate the novel trait from a naturally occurring <i>fan1</i> gene mutant that was selected for low linolenic acid. |
| 7 | W62, W98 | Bayer CropScience (Aventis CropScience(AgrEvo)) | 35S | Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces hygrosopicus</i> . |
| Kukuřice | | | | |
| 1 | 176 | Syngenta Seeds, Inc. | 35S, BT176-IR1-P/G, Cry1Ab, real time PCR | Insect-resistant maize produced by inserting the <i>cry1Ab</i> gene from <i>Bacillus thuringiensis</i> subsp. <i>Kurstaki</i> . The genetic modification affords resistance to attack by the European corn borer (ECB). |
| 2 | 3751IR | Pioneer Hi-Bred International Inc. | | Selection of somaclonal variants by culture of embryos on imidazolinone containing media. |
| 3 | 676, 678, 680 | Pioneer Hi-Bred International Inc. | | Male-sterile and glufosinate ammonium herbicide tolerant maize produced by inserting genes encoding DNA adenine methylase and phosphinothricin acetyltransferase (PAT) from <i>Escherichia coli</i> and <i>Streptomyces viridochromogenes</i> , respectively. |
| 4 | B16 (DLL25) | Dekalb Genetics Corporation | 35S, | Glufosinate ammonium herbicide tolerant maize produced by inserting the gene encoding phosphinothricin acetyltransferase (PAT) from <i>Streptomyces hygrosopicus</i> . |
| 5 | BT11 (X4334CBR, X4734CBR) | Syngenta Seeds, Inc. | 35S, NOS, Cry1Ab, real time PCR | Insect-resistant and herbicide tolerant maize produced by inserting the <i>cry1Ab</i> gene from <i>Bacillus thuringiensis</i> subsp. <i>Kurstaki</i> , and the phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>S. viridochromogenes</i> . |
| 6 | CBH-351 | Aventis CropScience | Cry9C, 35S, NOS | Insect-resistant and glufosinate ammonium herbicide tolerant maize developed by inserting genes encoding Cry9C protein from <i>Bacillus thuringiensis</i> subsp. <i>tolworthi</i> and phosphinothricin acetyltransferase (PAT) from <i>Streptomyces hygrosopicus</i> . |
| 7 | DBT418 | Dekalb Genetics Corporation | | Insect-resistant and glufosinate ammonium herbicide tolerant maize developed by inserting genes encoding Cry1AC protein from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> and phosphinothricin acetyltransferase (PAT) from <i>Streptomyces hygrosopicus</i> . |
| 8 | DK404SR | BASF Inc. | | Somaclonal variants with a modified acetyl-CoA-carboxylase (ACCCase) were selected by culture of embryos on sethoxydim enriched medium. |

| | | | | |
|-------------|--------------------|--|-------------------------------|--|
| 9 | EXP1910IT | Syngenta Seeds, Inc. (formerly Zeneca Seeds) | | Tolerance to the imidazolinone herbicide, imazethapyr, induced by chemical mutagenesis of the acetolactate synthase (ALS) enzyme using ethyl methanesulfonate (EMS). |
| 10 | GA21 | Monsanto Company | NOS | Introduction, by particle bombardment, of a modified 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS), an enzyme involved in the shikimate biochemical pathway for the production of the aromatic amino acids. |
| 11 | IT | Pioneer Hi-Bred International Inc. | | Tolerance to the imidazolinone herbicide, imazethapyr, was obtained by in vitro selection of somaclonal variants. |
| 12 | MON80100 | Monsanto Company | | Insect-resistant maize produced by inserting the cry1Ab gene from <i>Bacillus thuringiensis</i> subsp. <i>Kurstaki</i> . The genetic modification affords resistance to attack by the European corn borer (ECB). |
| 13 | MON802 | Monsanto Company | | Insect-resistant and glyphosate herbicide tolerant maize produced by inserting the genes encoding the Cry1Ab protein from <i>Bacillus thuringiensis</i> and the 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from <i>A. tumefaciens</i> strain CP4. |
| 14 | MON809 | Pioneer Hi-Bred International Inc. | 35S, NOS, EPSPS | Resistance to European corn borer (<i>Ostrinia nubilalis</i>) by introduction of a synthetic cry1Ab gene. Glyphosate resistance via introduction of the bacterial version of a plant enzyme, 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS). |
| 15 | MON810 YieldGuard | Monsanto Company | 35S, Cry1Ab | Insect-resistant maize produced by inserting a truncated form of the cry1Ab gene from <i>Bacillus thuringiensis</i> subsp. <i>Kurstaki</i> HD-1. The genetic modification affords resistance to attack by the European corn borer (ECB). |
| 16 | MON832 | Monsanto Company | 35S, NOS | Introduction, by particle bombardment, of glyphosate oxidase (GOX) and a modified 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS), an enzyme involved in the shikimate biochemical pathway for the production of the aromatic amino acids. |
| 17 | MON863 | Monsanto Company | 35S, Cry3Bb1 gene, nptII gene | Corn root worm resistant maize produced by inserting the cry3Bb1 gene from <i>Bacillus thuringiensis</i> subsp. <i>Kumamotoensis</i> . |
| 18 | MS3 | Bayer CropScience (Aventis CropScience(AgrEvo)) | | Male sterility caused by expression of the barnase ribonuclease gene from <i>Bacillus amyloliquefaciens</i> ; PPT resistance was via PPT-acetyltransferase (PAT). |
| 19 | MS6 | Bayer CropScience (Aventis CropScience(AgrEvo)) | | Male sterility caused by expression of the barnase ribonuclease gene from <i>Bacillus amyloliquefaciens</i> ; PPT resistance was via PPT-acetyltransferase (PAT). |
| 20 | NK603 | Monsanto Company | EPSPS, NK603, 35S, NOS | Introduction, by particle bombardment, of a modified 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS), an enzyme involved in the shikimate biochemical pathway for the production of the aromatic amino acids. |
| 21 | T14, T25 | Bayer CropScience (Aventis CropScience(AgrEvo)) | 35S, T25 | Glufosinate herbicide tolerant maize produced by inserting the phosphinothricin N-acetyltransferase (PAT) encoding gene from the aerobic actinomycete <i>Streptomyces viridochromogenes</i> . |
| 22 | TC1507 | Mycogen (c/o Dow AgroSciences); Pioneer (c/o DuPont) | 35S, Cry1Fa2 | Insect-resistant and glufosinate ammonium herbicide tolerant maize produced by inserting the cry1F gene from <i>Bacillus thuringiensis</i> var. <i>aizawai</i> and the phosphinothricin N-acetyltransferase encoding gene from <i>Streptomyces viridochromogenes</i> . |
| Rýže | | | | |
| 1 | LLRICE601 | Bayer CropScience (Aventis CropScience(AgrEvo)) | 35S, NOS, <i>bar</i> | <i>Agrobacterium tumefaciens</i> -mediated plant transformation. Phosphinothricin (PPT) herbicide tolerance, specifically glufosinate ammonium. |
| 2 | LLRICE06, LLRICE62 | Aventis CropScience | 35S, <i>bar</i> | Direct DNA transfer system. Phosphinothricin (PPT) herbicide tolerance, specifically glufosinate ammonium. |
| 3 | Bt63 | China | Cry1Ab, Cry1Ac | Resistance to lepidopteran pests through the introduction of the cry1Ab and cry1Ac gene from <i>Bacillus thuringiensis</i> |

* Použitá data doplněna z více publikačních zdrojů.

EU register of genetically modified food and feed

| Genetically modified cotton | | | |
|---|---|--|----------------------------------|
| Transformation event/ Unique ID/ Company | Genes Introduced / Characteristics | Authorized use | Authorization Expiration Date |
| Cotton (MON1445) <u>MON-Ø1445-2</u> Monsanto | Genetically modified cotton that contains: cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate | Food produced from MON1445 cotton (cottonseed oil) | Renewal of authorisation ongoing |
| | | Food additives produced from MON1445 cotton | Renewal of authorisation ongoing |
| | | Feed produced from MON1445 cotton (feed materials and feed additives) | Renewal of authorisation ongoing |
| Cotton (MON15985) <u>MON-15985-7</u> Monsanto | Genetically modified cotton that contains: cry1Ac and cry2Ab2 genes inserted to confer insect-resistance highly selective in controlling Lepidopteran insects | Food additives produced from MON-15985-7 cotton | Renewal of authorisation ongoing |
| | | Feed produced from MON 15985 cotton (feed materials and feed additives) | Renewal of authorisation ongoing |
| Cotton (MON15985 x MON1445) <u>MON-15985-7 x MON-Ø1445-2</u> Monsanto | Genetically modified cotton that contains: cry1Ac and cry2Ab2 genes inserted to confer insect-resistance highly selective in controlling Lepidopteran insects cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate | Food additives produced from MON15985 x MON1445 cotton | Renewal of authorisation ongoing |
| | | Feed produced from MON15985 x MON1445 cotton (feed materials and feed additives) | Renewal of authorisation ongoing |
| Cotton (MON531) <u>MON-ØØ531-6</u> Monsanto | Genetically modified cotton that contains: cry1A(c) gene inserted to confer insect-resistance | Food produced from MON 531 cotton (cottonseed oil) | Renewal of authorisation ongoing |
| | | Food produced from MON 531 cotton (food additives) | Renewal of authorisation ongoing |
| | | Feed produced from MON 531 cotton (feed materials and feed additives) | Renewal of authorisation ongoing |
| Cotton (MON531 x MON1445) <u>MON-ØØ531-6 x MON-Ø1445-2</u> Monsanto | Genetically modified cotton that contains: cry1A(c) gene inserted to confer insect-resistance cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate | Food additives produced from MON531 x MON1445 cotton | Renewal of authorisation ongoing |
| | | Feed produced from MON 531 x MON 1445 cotton (feed materials and feed additives) | Renewal of authorisation ongoing |
| Cotton (LLCotton25) <u>ACS-GHØØ1-3</u> Bayer | Genetically modified cotton that contains: pat gene inserted to confer tolerance to the glyphosinate-ammonium herbicide | Foods and food ingredients containing, consisting of, or produced from ACS-GHØØ1-3 cotton (including food additives) | 28/10/2018 |
| | | Feed containing, consisting of, or produced from ACS-ACS-GHØØ1-3 cotton (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of ACS-GHØØ1-3 cotton for the same uses as any other cotton with the exception of cultivation | |
| Cotton (GHB614) <u>BCS-GHØØ2-5</u> [Bayer] | Genetically modified cotton that expresses: 2mepsps gene inserted to confer tolerance to the glyphosate herbicides | Foods and food ingredients containing, consisting of, or produced from BCS-GHØØ2-5 cotton (including food additives) | 16/06/2021 |
| | | Feed containing, consisting of, or produced from BCS-GHØØ2-5 cotton (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of BCS-GHØØ2-5 cotton for the same | |

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| | | uses as any other maize with the exception of cultivation | |
| Cotton (281-24-236x3006-210-23) DAS-24236-5xDAS-21023-5 [Dow AgroSciences] | Genetically modified cotton that expresses: cry1Ac and cry1F genes which provide protection to certain lepidopteran pests pat gene inserted to confer tolerance to the glufosinate-ammonium herbicides | Foods and food ingredients containing, consisting of, or produced from DAS-24236-5xDAS-21023-5 cotton (including food additives) | 21/12/2021 |
| | | Feed containing, consisting of, or produced from DAS-24236-5xDAS-21023-5 cotton (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of DAS-24236-5xDAS-21023-5 cotton for the same uses as any other maize with the exception of cultivation | |

| Genetically modified maize | | | |
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| Transformation event/ Unique ID/ Company | Genes Introduced / Characteristics | Authorized use | Authorization Expiration Date |
| Maize (Bt11) SYN BT 011-1 Syngenta | Genetically modified maize that contains: cryIA (b) gene inserted to confer insect-resistance pat gene inserted to confer tolerance to the herbicide glufosinate-ammonium | Foods and food ingredients containing, consisting of, or produced from SYN-BT011-1xMON-00021-9 | 27/07/2020 |
| | | Feed containing, consisting of, or produced from SYN-BT011-1xMON-00021-9 | |
| | | Products other than food and feed containing or consisting of SYN-BT011-1xMON-00021-9 | |
| Maize (DAS1507) DAS-01507-1 Pioneer and DowAgroSciences | Genetically modified maize that contains: cry1F gene inserted to confer resistance to the European corn borer and certain other lepidopteran pests pat gene inserted to confer tolerance to the herbicide glufosinate-ammonium | Foods and food ingredients containing, consisting or produced from DAS1507 maize (including food additives) | 02/03/2016 |
| | | Feed produced from DAS1507 maize (feed materials and feed additives) | 15/03/2016 |
| | | Feed produced from DAS1507 maize (feed materials and feed additives) | 02/03/2016 |
| | | Other products containing or consisting of DAS1507 with the exception of cultivation | 15/03/2016 |
| Maize (GA21) MON-00021-9 Monsanto | Genetically modified maize that contains: epsps gene inserted to confer tolerance to herbicide glyphosate | Foods and food ingredients containing, consisting of, or produced from MON-00021-9 maize (including food additives) | 27/03/2018 |
| | | Feed containing, consisting of, or produced from MON-00021-9 maize (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of MON-00021-9 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (MON810) MON-00810-6 Monsanto | Genetically modified maize that contains: cryIA (b) gene inserted to confere resistance to lepidopteran pests | Foods and food ingredients produced from MON810 (including food additives) | Renewal of authorisation ongoing |
| | | Feed containing or consisting of MON810 maize | Renewal of authorisation ongoing |

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| | | Feed produced from MON810 maize (feed materials feed additives) | Renewal of authorisation ongoing |
| | | <u>Seeds for cultivation</u> | Renewal of authorisation ongoing |
| Maize (MON863) <u>MON-00863-5</u> Monsanto | Genetically modified maize that contains: a trait gene cry3Bb1 inserted to confer insect- resistance nptII gene inserted as a selection marker | Food containing, consisting of, or produced from MON 863 maize | 12/01/2016 |
| | | Food additives produced from MON 863 maize | Renewal of authorisation ongoing |
| | | Feed containing or consisting of MON 863 maize | 12/02/2016 |
| | | Feed produced from MON 863 maize (feed materials and feed additives) | Renewal of authorisation ongoing |
| | | Other products containing or consisting of MON863 with the exception of cultivation | 12/02/2016 |
| Maize (MON863 x NK603) <u>MON-00863-5 x MON-00603-6</u> Monsanto | Genetically modified maize that contains: cry3Bb1 gene inserted to confer protection against certain coleopteran pests cp4 epsps gene inserted to confer tolerance to glyphosate herbicides nptII gene inserted as a selection marker | Foods and food ingredients containing, consisting of, or produced from MON-00863-5xMON-00603-6 maize | 01/03/2020 |
| | | Feed containing, consisting of, or produced from MON-00863-5xMON-00603-6 maize) | |
| | | Products other than food and feed, containing or consisting of MON-00863-5xMON-00603-6 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (MON863 x MON810) <u>MON-00863-5 x MON-00810-6</u> Monsanto | Genetically modified maize that contains: cry3Bb1 gene inserted to confer protection against certain coleopteran pests cry1Ab gene inserted to confer protection against certain lepidopteran insect pests nptII gene inserted as a selection marker | Foods and food ingredients containing, consisting of, or produced from MON-00863-5xMON-00810-6 maize | 01/03/2020 |
| | | Feed containing, consisting of, or produced from MON-00863-5xMON-00810-6 maize | |
| | | Products other than food and feed, containing or consisting of MON-00863-5xMON-00810-6 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (NK603) <u>MON-00603-6</u> Monsanto | Genetically modified maize that contains: cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate | Food containing, consisting of, or produced from NK603 maize | 02/03/2015 |
| | | Food additives produced from NK603 maize | Renewal of authorisation ongoing |
| | | Feed containing or consisting of NK603 maize | 17/10/2014 |
| | | Feed produced from NK603 maize (feed materials and feed additives) | Renewal of authorisation ongoing |
| | | Other products containing or consisting of NK603 with the exception of cultivation | 17/10/2014 |
| Maize (NK603 x MON810) <u>MON-00603-6 x MON-00810-6</u> Monsanto | Genetically modified maize that contains: cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate; cryIA (b) gene inserted to confer resistance to lepidopteran pests | Foods and food ingredients containing, consisting of, or produced from MON-00603-6xMON-00810-6 maize (including food additives) | 23/10/2017 |
| | | Feed containing, consisting of, or produced from MON-00603-6xMON-00810-6 maize (feed materials and feed additives) | 23/10/2017 |

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| | | Products other than food and feed containing or consisting of MON-00603-6xMON-00810-6 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (T25) <u>ACS-ZM003-2</u> Bayer | Genetically modified maize that contains: pat gene inserted to confer tolerance to the herbicide glufosinate-ammonium | Food and food ingredients produced from T25 maize | Renewal of authorisation ongoing |
| | | Feed containing, consisting of, or produced from T25 maize (feed materials and feed additives) | Renewal of authorisation ongoing |
| Maize (DAS1507xNK603) <u>DAS-01507-1xMON-00603-6</u> Pioneer and Dow AgroSciences | Genetically modified maize that expresses: the Cry1F protein which confers protection against certain lepidopteran pests such as the European corn borer (<i>Ostrinia nubilalis</i>) and species belonging to the genus <i>Sesamia</i> , the PAT protein which confers tolerance to the glufosinate-ammonium herbicide the CP4 EPSPS protein which confers tolerance to the glyphosate herbicide | Foods and food ingredients containing, consisting of, or produced from DAS-01507-1xMON-00603-6 maize (including food additives) | 23/10/2017 |
| | | Feed containing, consisting of, or produced from DAS-01507-1xMON-00603-6 maize (feed materials and feed additives) | |
| | | Products, other than food and feed, containing or consisting of DAS-01507-1xMON-00603-6 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (MON88017) <u>MON-88017-3</u> Monsanto | Genetically modified maize that contains: modified cry3Bb1 gene inserted to confer protection to certain coleopteran pests and cp4 epsps gene inserted to confer tolerance to glyphosate herbicides | Foods and food ingredients containing, consisting of, or produced from MON-88017-3 maize (including food additives) | 29/10/2019 |
| | | Feed containing, consisting of, or produced from MON-88017-3 maize (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of MON-88017-3 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (MON89034) <u>MON-89034-3</u> Monsanto | Genetically modified maize that contains: cry1A.105 and cry2Ab2 genes inserted to confer protection to certain lepidopteran pests | Foods and food ingredients containing, consisting of, or produced from MON-89034-3 maize (including food additives) | 29/10/2019 |
| | | Feed containing, consisting of, or produced from MON-89034-3 maize (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of MON-89034-3 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (59122xNK603) <u>DAS-59122-7xMON-00603-6</u> Pioneer | Genetically modified maize that contains: cry34Ab1 and cry35Ab1 genes inserted to confer protection against certain coleopteran pests pat genes inserted to confer tolerance to the glufosinate-ammonium herbicides cp4 epsps genes inserted to confer tolerance to glyphosate herbicides | Foods and food ingredients containing, consisting of, or produced from DAS-59122-7xMON-00603-6 maize (including food additives) | 29/10/2019 |
| | | Feed containing, consisting of, or produced from DAS-59122-7xMON-00603-6 maize (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of DAS-59122-7xMON-00603-6 maize for the same uses as any other maize with the exception of cultivation | |
| Maize (MIR604) <u>SYN-IR604-5</u> | Genetically modified maize that contains: | Foods and food ingredients containing, consisting of, or produced from SYN-IR604-5 maize (including food additives) | 29/11/2019 |

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| <p>Syngenta</p> | <p>modified cry3A gene inserted to confer protection against certain coleopteran pests</p> <p>pmi gene inserted as selection marker</p> | <p>Feed containing, consisting of, or produced from SYN-IR604-5 maize (feed materials and feed additives)</p> <p>Products other than food and feed containing or consisting of SYN-IR604-5 maize for the same uses as any other maize with the exception of cultivation</p> | |
| <p>Maize (DAS59122)</p> <p><u>DAS-59122-7</u></p> <p>Pioneer and Dow AgroSciences</p> | <p>Genetically modified maize that contains:</p> <p>the cry34Ab1 and cry35Ab1 genes inserted to confer protection against certain coleopteran pests such as corn rootworm larvae (<i>Diabrotica</i> spp.)</p> <p>pat gene inserted to confer tolerance to the glufosinate-ammonium herbicide</p> | <p>Foods and food ingredients containing, consisting of, or produced from DAS-59122-7 maize (including food additives)</p> <p>Feed containing, consisting of, or produced from DAS-59122-7 maize (feed materials and feed additives)</p> <p>Products other than food and feed containing or consisting of DAS-59122-7 maize for the same uses as any other maize with the exception of cultivation</p> | <p>23/10/2017</p> |
| <p>Maize (MON863xMON810xNK603)</p> <p><u>MON-00863-5xMON-00810-6xMON-00603-6</u></p> <p>Monsanto</p> | <p>Genetically modified maize that contains:</p> <p>cry3Bb1 gene inserted to confer protection against certain coleopteran pests</p> <p>cry1Ab gene inserted to confer protection against certain lepidopteran insect pests</p> <p>cp4 epsps gene inserted to confer tolerance to glyphosate herbicides</p> <p>nptII gene inserted as a selection marker</p> | <p>Foods and food ingredients containing, consisting of, or produced from MON-00863-5xMON-00810-6xMON-00603-6 maize</p> <p>Feed containing, consisting of, or produced from MON-00863-5xMON-00810-6xMON-00603-6 maize</p> <p>Products other than food and feed, containing or consisting of MON-00863-5xMON-00810-6xMON-00603-6 maize for the same uses as any other maize with the exception of cultivation</p> | <p>01/3/2020</p> |
| <p>Maize (Bt11xGA21)</p> <p><u>SYN-BT011-1xMON-00021-9</u></p> <p>Syngenta</p> | <p>Genetically modified maize that expresses:</p> <p>the cry1Ab gene which confers protection against certain lepidopteran pests</p> <p>the pat gene which confers tolerance to the glufosinate-ammonium herbicides</p> <p>the mepsps gene which confers tolerance to glyphosate herbicides</p> | <p>Foods and food ingredients containing, consisting of, or produced from SYN-BT011-1xMON-00021-9</p> <p>Feed containing, consisting of, or produced from SYN-BT011-1xMON-00021-9</p> <p>Products other than food and feed containing or consisting of SYN-BT011-1xMON-00021-9</p> | <p>27/07/2020</p> |
| <p>Maize (MON88017xMON810)</p> <p><u>MON-88017-3xMON-00810-6</u></p> <p>Monsanto</p> | <p>Genetically modified maize that expresses:</p> <p>the cry1Ab gene which confers protection against certain lepidopteran pests</p> <p>the cry3Bb1 gene which provides protection to certain coleopteran pests</p> <p>the cp4 epsps gene which confers tolerance to glyphosate herbicides</p> | <p>Foods and food ingredients containing, consisting of, or produced from MON-88017-3xMON-00810-6</p> <p>Feed containing, consisting of, or produced from MON-88017-3xMON-00810-6</p> <p>Products other than food and feed containing or consisting of MON-88017-3xMON-00810-6</p> | <p>27/07/2020</p> |

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| <p>Maize (MON89034 xNK603) <u>MON-89034-3x MON-00603-6</u></p> <p>Monsanto</p> | <p>Genetically modified maize that expresses:</p> <p>the cry1A.105 and cry2Ab2 genes which provide protection to certain lepidopteran pests</p> <p>the cp4 epsps gene which confers tolerance to glyphosate herbicides</p> | <p>Foods and food ingredients containing, consisting of, or produced from MON-89034-3x MON-00603-6</p> <p>Feed containing, consisting of, or produced from MON-89034-3x MON-00603-6</p> <p>Products other than food and feed containing or consisting of MON-89034-3x MON-00603-6</p> | <p>27/07/2020</p> |
| <p>Maize (59122x1507xNK603) <u>DAS-59122-7xDAS-01507xMON-00603-6</u></p> <p>Pioneer</p> | <p>Genetically modified maize that expresses:</p> <p>the cry1F gene which confers protection against certain lepidopteran pests</p> <p>the cry34Ab1 and cry35Ab1 genes which provide protection to certain coleopteran pests</p> <p>the pat gene which confers tolerance to the glufosinate-ammonium herbicides</p> <p>the cp4 epsps gene which confers tolerance to glyphosate herbicides</p> | <p>Foods and food ingredients containing, consisting of, or produced from DAS-59122-7xDAS-01507xMON-00603-6</p> <p>Feed containing, consisting of, or produced from DAS-59122-7xDAS-01507xMON-00603-6</p> <p>Products other than food and feed containing or consisting of DAS-59122-7xDAS-01507xMON-00603-6</p> | <p>27/07/2020</p> |
| <p>Maize (1507x59122) <u>DAS-01507x DAS-59122-7</u></p> <p>Pioneer</p> | <p>Genetically modified maize that expresses:</p> <p>the cry1F gene which confers protection against certain lepidopteran pests</p> <p>the cry34Ab1 and cry35Ab1 genes which provide protection to certain coleopteran pests</p> <p>the pat gene which confers tolerance to the glufosinate-ammonium herbicides</p> | <p>Foods and food ingredients containing, consisting of, or produced from DAS-01507x DAS-59122-7</p> <p>Feed containing, consisting of, or produced from DAS-01507x DAS-59122-7</p> <p>Products other than food and feed containing or consisting of DAS-01507x DAS-59122-7</p> | <p>27/07/2020</p> |
| <p>Maize (MON89034 xMON88017) <u>MON-89034-3x MON-88017-3</u></p> <p>[Monsanto]</p> | <p>Genetically modified maize that expresses:</p> <p>cry1A.105 and cry2Ab2 genes which provide protection to certain lepidopteran pests</p> <p>cry3Bb1 gene which provides protection to certain coleopteran pests</p> <p>cp4 epsps gene which confers tolerance to glyphosate herbicides</p> | <p>Foods and food ingredients containing, consisting of, or produced from MON-89034-3x MON-88017-3 maize (including food additives)</p> <p>Feed containing, consisting of, or produced from MON-89034-3x MON-88017-3 maize (feed materials and feed additives)</p> <p>Products other than food and feed containing or consisting of MON-89034-3x MON-88017-3 maize for the same uses as any other maize with the exception of cultivation</p> | <p>16/06/2021</p> |
| <p>Maize (MIR604 xGA21) <u>SYN-IR604-5 x MON-00021-9</u></p> <p>[Syngenta]</p> | <p>Genetically modified maize that expresses:</p> <p>cry3A gene which provides protection to certain coleopteran pests</p> <p>mepsps gene which confers tolerance to glyphosate herbicides</p> | <p>Foods and food ingredients containing, consisting of, or produced from SYN-IR604-5xMON-00021-9 maize (including food additives)</p> <p>Feed containing, consisting of, or produced from SYN-IR604-5xMON-00021-9 maize (feed materials and feed additives)</p> | <p>21/12/2021</p> |

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| | | Products other than food and feed containing or consisting of SYN-IR604-5xMON-00021-9 maize for the same uses as any other maize with the exception of cultivation | |
| <p>Maize (Bt11xMIR604) SYN-BT011-1 x SYN-IR604-5 [Syngenta]</p> | <p>Genetically modified maize that expresses:</p> <p>cry1Ab gene which provide protection to certain lepidopteran pests cry3A gene which provides protection to certain coleopteran pests pat gene which confers tolerance to the glufosinate-ammonium herbicides</p> | Foods and food ingredients containing, consisting of, or produced from SYN-BT011-1xSYN-IR604-5 maize (including food additives) | 21/12/2021 |
| | | Feed containing, consisting of, or produced from SYN-BT011-1xSYN-IR604-5 maize (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of SYN-BT011-1xSYN-IR604-5 maize for the same uses as any other maize with the exception of cultivation | |
| <p>Maize (Bt11xMIR604xGA21) SYN-BT011-1xSYN-IR604-5xMON-00021-9 [Syngenta]</p> | <p>Genetically modified maize that expresses:</p> <p>cry1Ab gene which provide protection to certain lepidopteran pests cry3A gene which provides protection to certain coleopteran pests pat gene which confers tolerance to the glufosinate-ammonium herbicides mepspsgene which confers tolerance to glyphosate herbicides</p> | Foods and food ingredients containing, consisting of, or produced from SYN-BT011-1xSYN-IR604-5xMON-00021-9 maize (including food additives) | 21/12/2021 |
| | | Feed containing, consisting of, or produced from SYN-BT011-1xSYN-IR604-5xMON-00021-9 maize (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of SYN-BT011-1xSYN-IR604-5xMON-00021-9 maize for the same uses as any other maize with the exception of cultivation | |
| <p>Maize (MIR162) SYN-IR162-4 [Syngenta]</p> | <p>Genetically modified maize that contains:</p> <p>vip3Aa20 gene inserted to confer insect-resistance</p> | Foods and food ingredients containing, consisting of, or produced from SYN-IR162-4 | 18/10/2022 |
| | | Feed containing, consisting of, or produced from SYN-IR162-4 | |
| | | Products other than food and feed containing or consisting of SYN-IR162-4 | |

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| <p>Maize (MON 89034×1507×MON88017×59122)</p> <p>MON-89034-3xDAS-01507-1xMON-88017-3xDAS-59122-7</p> <p>and</p> <p>four related GM maizes combining three different single GM events:</p> <p>(MON89034×1507×MON88017) MON-89034-3xDAS-01507-1xMON-88017-3,</p> <p>(MON89034×1507×59122) MON-89034-3xDAS-01507-1xDAS-59122-7,</p> <p>(MON89034×MON88017×59122) MON-89034-3xMON-88017-3xDAS-59122-7,</p> <p>(1507×MON88017×59122) DAS-01507-1xMON-88017-3xDAS-59122-7</p> <p>and</p> <p>four related GM maizes combining two different single GM events:</p> <p>(MON89034x1507) MON-89034-3xDAS-01507-1,</p> <p>(MON89034x59122) MON-89034-3xDAS-59122-7,</p> <p>(1507xMON88017) DAS-01507-1xMON-88017-3,</p> <p>(MON88017x59122) MON-88017-3xDAS-59122-7</p> <p>[Monsanto and Dow AgroSciences]</p> | <p>Genetically modified maize that contains:</p> <p>Cry1A.105, Cry2Ab2, Cry1F genes inserted to confer protection against certain lepidopteran pests such as the European corn borer (<i>Ostrinia nubilalis</i>) and species belonging to the genus <i>Sesamia</i>, Cry3Bb1, Cry34Ab1 and Cry35Ab1 genes inserted to confer protection against certain coleopteran pests such as corn rootworm larvae (<i>Diabrotica</i> spp.)</p> <p>pat gene inserted to confer tolerance to the glufosinate-ammonium herbicide</p> <p>cp4 epsps gene inserted to confer tolerance to the glyphosate herbicide</p> | <p>Foods and food ingredients containing, consisting of, or produced from the GMOs, specified in column 1 (including food additives)</p> <p>Feed containing, consisting of, or produced from the GMOs, specified in column 1 (feed materials and feed additives)</p> <p>Products, other than food and feed, containing or consisting of the GMOs, specified in column 1, for the same uses as any other maize, with the exception of cultivation</p> | <p>05/11/2023</p> |
| <p>Maize (MON89034×1507×NK603)</p> <p>MON-89034-3×DAS-01507-1×MON-00603-6</p> <p>[Monsanto and Dow AgroSciences]</p> | <p>Genetically modified maize that contains:</p> <p>Cry1A.105, Cry2Ab2, Cry1F genes inserted to confer protection against certain lepidopteran pests such as the European corn borer (<i>Ostrinia nubilalis</i>) and species belonging to the genus <i>Sesamia</i>,</p> <p>pat gene inserted to confer tolerance to the glufosinate-ammonium herbicide</p> <p>cp4 epsps gene inserted to confer</p> | <p>Foods and food ingredients containing, consisting of, or produced from MON-89034-3×DAS-01507-1×MON-00603-6 maize (including food additives)</p> <p>Feed containing, consisting of, or produced from MON-89034-3×DAS-01507-1×MON-00603-6 maize (feed materials and feed additives)</p> | <p>05/11/2023</p> |

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| | tolerance to the glyphosate herbicide | Products, other than food and feed, containing or consisting of MON-89034-3×DAS-01507-1×MON-00603-6 maize for the same uses as any other maize with the exception of cultivation | |
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| Genetically modified oilseed rape | | | |
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| Transformation event/ Unique ID/ Company | Genes Introduced / Characteristics | Authorized use | Authorization Expiration Date |
| Oilseed rape (GT73) <u>MON-00073-7</u> Monsanto | Genetically modified oilseed rape that contains: cp4 epsps and goxv247 genes inserted to confer tolerance to the herbicide glyphosate | Food produced from GT73 oilseed rape (refined oil and food additives) | Renewal of authorisation ongoing |
| | | Feed containing and consisting of GT73 oilseed rape | |
| | | Feed produced from GT73 oilseed rape (feed materials and feed additives) | Renewal of authorisation ongoing |
| | | Other products containing or consisting of GT73 with the exception of cultivation | |
| Swede-rape (MS8, RF3, MS8xRF3) <u>ACS-BN005-8</u> <u>ACS-BN003-6</u> <u>ACS-BN005-8 x ACS-BN003-6</u> Bayer | Genetically modified oilseed rape that contains: a bar (pat) gene inserted to confer tolerance to herbicides based on glufosinate ammonium barnase gene inserted to leads to lack of viable pollen and male sterility barstar gene inserted to leads to lack of viable pollen and male sterility | Food produced from MS8, RF3, MS8 x RF3 swede-rape (processed oil) | Renewal of authorisation ongoing |
| | | Feed containing or consisting of MS8, RF3, MS8 x RF3 swede-rape | |
| | | Feed produced from MS8, RF3, MS8 x RF3 swede-rape | Renewal of authorisation ongoing |
| | | Other products containing or consisting of MS8, RF3, MS8 x RF3 swede-rape with the exception of cultivation | |
| Oilseed rape (T45) <u>ACS-BN008-2</u> Bayer | Genetically modified oilseed rape that contains: pat gene inserted to confer tolerance to the herbicide glufosinate-ammonium | Foods and food ingredients containing or produced from ACS-BN008-2 oilseed rape (including food additives) | 09/03/2019 |
| | | Feed containing or produced from ACS-BN008-2 oilseed rape (feed materials and feed additives) | |
| | | Products other than food and feed | |

| Genetically modified soybean | | | |
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| Transformation event/ <u>Unique ID</u> / Company | Genes Introduced / Characteristics | Authorized use | Authorization Expiration Date |
| Soya (MON40-3-2) <u>MON-04032-6</u> Monsanto | Genetically modified soya that contains: cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate | Food containing, consisting of, or produced from MON 40-3-2 soybean (including food additives) | 09/02/2022 |
| | | Feed containing or consisting of MON 40-3-2 soybean | |
| | | Feed produced from MON 40-3-2 soybean (feed materials and feed additives) | |
| | | Other products containing or consisting of MON 40-3-2 soybean with the exception of cultivation | |
| Soybean (A2704-12) <u>ACS-GM005-3</u> Bayer | Genetically modified soybean that contains: pat gene inserted to confer tolerance to the glyphosate-ammonium herbicide | Foods and food ingredients containing, consisting of, or produced from ACS-GM005-3 soybean (including food additives) | 07/09/2018 |
| | | Feed containing, consisting of, or produced from ACS-GM005-3 soybean (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of ACS-GM005-3 soybean for the same uses as any other soybean with the exception of cultivation | |
| Soybean (MON89788) <u>MON-89788-1</u> Monsanto | Genetically modified soybean that contains: cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate | Foods and food ingredients containing, consisting of, or produced from MON-89788-1 soybean (including food additives) | 03/12/2018 |
| | | Feed containing, consisting of, or produced from MON-89788-1 soybean (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of MON-89788-1 soybean for the same uses as any other soybean with the exception of cultivation | |
| Soybean (MON87701) <u>MON-87701-2</u> [Monsanto] | Genetically modified soybean that contains: cry1Ac gene inserted to confer protection against certain lepidopteran pests | Foods and food ingredients containing, consisting of, or produced from MON-87701-2 soybean (including food additives) | 09/02/2022 |
| | | Feed containing, consisting of, or produced from MON-87701-2 soybean (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of MON-87701-2 soybean for the same uses as any other soybean with the exception of cultivation | |
| Soybean (356043) <u>DP-356043-5</u> [Pioneer] | Genetically modified soybean that contains: gat gene inserted to confer tolerance to the herbicide glyphosate gm-hra gene inserted to confer tolerance to the ALS-inhibiting herbicide | Foods and food ingredients containing, consisting of, or produced from DP-356043-5 soybean (including food additives) | 09/02/2022 |
| | | Feed containing, consisting of, or produced from DP-356043-5 soybean (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of DP-356043-5 soybean for the same uses as any other soybean with the exception of cultivation | |
| Soybean (A5547-127) <u>ACS-GM006-4</u> | Genetically modified soybean that contains: pat gene inserted to confer | Foods and food ingredients containing, consisting of, or produced from ACS-GM006-4 soybean (including food additives) | 09/02/2022 |

| | | | |
|---|--|--|------------|
| [Bayer | tolerance to the glufosinate-ammonium herbicide | Feed containing, consisting of, or produced from ACS-GM006-4 soybean (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of ACS-GM006-4 soybean for the same uses as any other soybean with the exception of cultivation | |
| Soybean (MON87701 x MON89788) MON-87701-2 x MON-89788-1 [Monsanto] | Genetically modified soybean that contains: cry1Ac gene inserted to confer protection against certain lepidopteran pests cp4 epsps gene inserted to confer tolerance to the herbicide glyphosate | Foods and food ingredients containing, consisting of, or produced from MON-87701-2 x MON-89788-1 soybean (including food additives) | 27/06/2022 |
| | | Feed containing, consisting of, or produced from MON-87701-2 x MON-89788-1 soybean (feed materials and feed additives) | |
| | | Products other than food and feed containing or consisting of MON-87701-2 x MON-89788-1 soybean for the same uses as any other soybean with the exception of cultivation | |

| Genetically modified sugar beet | | | |
|---|--|---|-------------------------------|
| Transformation event/ Unique ID/ Company | Genes Introduced / Characteristics | Authorized use | Authorization Expiration Date |
| Sugar beet (H7-1) <u>KM-00071-4</u> KWS SAAT and Monsanto | Genetically modified sugar beet that expresses: a CP4 EPSPS protein confers tolerance to glyphosate containing herbicides | Foods and food ingredients produced from KM-000H71-4 sugar beet | 23/10/2017 |
| | | Feed produced from KM-000H71-4 sugar beet | |

| Genetically modified microorganisms | | | |
|--|---|---|----------------------------------|
| Transformation event/ Unique ID/ Company | Genes Introduced / Characteristics | Authorized use | Authorization Expiration Date |
| Bacterial biomass (<u>pCABL- Bacterial biomass</u>) Ajinomoto Eurolysine SAS | Bacterial protein, by-product from the production by fermentation of L-Lysine HCl obtained from (Brevibacterium lactofermentum) the recovered killed microorganisms. The source is the Brevibacterium lactofermentum strain SO317/pCABL | Feed produced from GMO bacteria: " bacterial biomass" | Renewal of authorisation ongoing |
| Yeast biomass (<u>pMT742 or pAK729-Yeast biomass</u>) NOVO Nordisk A/S | NOVO Yeast Cream is a product produced from genetically modified yeast strains (Saccharomyces cerevisiae) cultivated on substrates of vegetable origin. The source is the Saccharomyces cerevisiae strain MT663/pMT742 or pAK729 | Feed materials produced from GMO yeast: "yeast biomass" | Renewal of authorisation ongoing |

Zdroj: http://ec.europa.eu/food/dyna/gm_register/index_en.cfm