ANEXO I

Estudio comparativo soluciones fitosanitarias en el cultivo de la fresa en España, Francia, Italia y Portugal.

1. Metodología

1.1. Objetivo del Análisis

El presente estudio tiene como finalidad evaluar la disponibilidad de sustancias activas fitosanitarias en los cuatro países que conforman el Grupo de Contacto de la Fresa: España, Francia, Italia y Portugal. Este análisis se centra específicamente en el cultivo de fresa (Berries no incluidos) considerando las plagas, enfermedades y malas hierbas mencionadas en los informes aportados por cada uno de los Estados miembros que componen el grupo de contacto.

1.2. Fuente de Datos

Los datos utilizados en este análisis provienen de las contribuciones realizadas por las organizaciones de los cuatro países que componen el grupo de contacto, en el que se recoge la disponibilidad de soluciones por problema en cada uno de ellos. En el apartado 2 de este anexo, *Informe fitosanitario*, se incluye una breve descripción de un problema concreto, ya sea una plaga, enfermedad o mala hierba, así como su sintomatología y los daños que provoca en el cultivo.

A continuación, los países indican las sustancias activas aprobadas en su territorio para el control de dichos problemas. Esta información se presenta en un cuadro resumen donde se recogen todas las alternativas disponibles. Las respuestas aportadas por cada país se realizan en su idioma oficial.

1.3. Criterios de Clasificación

- Se registraron las sustancias activas disponibles en cada país.
- Se identificó la aplicación de cada sustancia activa en relación con una plaga, enfermedad o mala hierba específica.
- Se estableció un sistema de clasificación en el cual una Solución se define como una combinación de:

- Una sustancia activa.
- Un problema fitosanitario (plaga, enfermedad o maleza).

Dado que una misma sustancia activa puede estar autorizada para combatir diferentes problemas fitosanitarios en distintos países, se adoptó el concepto de "Solución" para evitar confusiones. Esto significa que:

1 solución = 1 Sustancia Activa disponible para combatir una plaga, enfermedad o mala hierba específica.

Por ejemplo:

La deltametrina en España está autorizada para el control de trips, orugas, pulgones y araña roja, por lo que la deltametrina compone 4 soluciones, ya que es posible controlar con la misma sustancia activa 4 plagas distintas.

1.4. Análisis Comparativo

- Se comparó la cantidad de soluciones disponibles en cada país.
- Se identificaron diferencias en la autorización de sustancias activas entre los cuatro países.
- Se analizaron brechas en la disponibilidad de soluciones fitosanitarias en función de los cultivos y los problemas fitosanitarios abordados.

1.5. Limitaciones del Estudio

- La regulación de fitosanitarios es dinámica, por lo que los resultados pueden variar con el tiempo. Este informe ha sido elaborado con datos aportados en 2024.

2. Informe fitosanitario

Phytosanitary problems and authorized active ingredients in Strawberry

27th March 2024

PESTS / NUISIBLES / PLAGAS / PARASSITI / PESTES

Helicoverpa armigera Hübner, Spodoptera littoralis Boisduval, Spodoptera exigua Hübner, Chrysodeixis chalcites Esper, Autographa gamma Linnaeus. [Strawberry caterpillars / Orugas de la fresa]

Description:

Strawberry caterpillars are a complex of more than 9 species, standing out for the damage caused and their abundance: *Helicoverpa armigera*, *Spodoptera littoralis, S. exigua* and the Plusias: *Chrysodeixis chalcites* and *Autographa gamma*, although they must be highlighted among all of them *Helicoverpa armigera* and depending on the area and season *Spodoptera littoralis*.

The caterpillars attack leaves, neck, shoots and fruiting bodies: flower and fruit. Damage occurs due to the bites of caterpillars while feeding and varies depending on the time of year and the species.

Available solutions:

France	Spain	Italy	Portugal
-Deltaméthrine -Spodoptera littoralis nucleopolyhedrovirus -virus de la polyhédrose nucléaire - Helicoverpa armigera -azadirachtine -deltaméthrine -Cyantraniliprole	- Azadiractín - Azufre - Bacillus Thuringiensis Kurstaki (Cepa SA-11 y Cepa SA-12) - Bacillus Thuringiensis Aizawai (Cepa GC-91) - Ciantraniliprol - Deltametrín - Emamectina** - (Cepa SA-11 y Cepa SA-12) - Lambda Cihalotrin** - Spinetoram* - Spinosad - Spodóptera littoralis nucleopoliedrovirus	-Azadirachtin - Bacillus thuringiensis sub. Aizawai (Cepa GC-91) - Bacillus thuringiensis sub. Kurstaki (Cepa SA-11 y Cepa SA-12) - Cyantraniliprole -Deltamethrin - Emamectin	- abamectina - abamectina + clorantraniliprol - azadiractina - Bacillus thuringiensis subsp. aizawai estirpe GC-91 - Bacillus thuringiensis subsp. kurstaki estirpe EG 2348 - Bacillus thuringiensis subsp. kurstaki estirpe PB-54

-Bacillus thuringiensis subsp. kurstaki PB 54 -Bacillus thuringiensis subsp. kurstaki SA-12 -Bacillus thuringiensis subsp. Kurstaki strain PB 54 Bacillus thuringiensis subsp. Kurstaki strain SA 11 Bacillus thuringiensis subsp. kurstaki EG2348 lambda-cyhalothrine Spinetoram spinosad	- Virus de la poliedrosis nuclear de spodoptera exigua	- Helicoverpa armígera nucleopolyedrovirus - Lambda-Cyhalothrin - Spinetoram* (phytosanitary products can be used until 30/12/25) - Spinosad - Spodóptera littoralis nucleopoliedrovirus - Sulphur - Virus de la poliedrosis nuclear de spodoptera exigua - Tau Fluvalinate	- Bacillus thuringiensis subsp. kurstaki estirpe SA11 - Bacillus thuringiensis subsp. kurstaki estirpe SA12 - Bacillus thuringiensis subsp. kurstaki serotipo 3a, 3b estirpe HD-1 - ciantraniliprol - deltametrina - emamectina (na forma de sal de benzoato) - espinetorame - spinosade - tau-fluvalinato - vírus da poliedrose nuclear de Spodoptera littoralis (SpliNPV)

Situation of active substances at European level:

- **Emamectina: caducidad 30/11/2024. Candidata a la sustitución.
- **Lambda cihalotrin: caducidad 31/08/2026. Candidata a la sustitución
- *Spinetoram: caducidad 30/06/2024.

Opogona sachari Bojer
[Platanera Drill / Taladro de la Platanera]

Description:
It is a nocturnal lepidopteran of the Tineidae family. The adult is about 10 mm long and 30 mm in wingspan, brown with two black spots on the wings. The eggs are difficult to detect due to their small size (0.5-0.55 mm and 0.38 mm in diameter), light yellow at the time of oviposition and yellowish brown just before hatching. The larvae emerge after approximately a week, their head is bright red-brown and in the adult state they measure 21-26 mm long and 3 mm wide.
They are very voracious and avoid light, their color is dirty white and partly transparent, where the internal organs can be distinguished. In addition, they have dark gray spots along each segment of

their body. The chrysalis is brown, with two curved hooks at the end of the abdomen characteristic of the species.
The species is polyphagous native to tropical and subtropical areas of Africa and feeds on plants from 22 families. It is an important pest of banana trees and can also attack tropical crops such as pineapple, bamboo, corn, potatoes and sugar cane. Damage to strawberry crops is observed when they are close to host crops such as bananas.
Its cycle lasts approximately 3 months at 15 degrees, shortening with increases in temperature, and in warm areas of the islands it can reach 5 generations per year.
The adults lay their eggs hidden at the base of the petioles of the leaves, and once they hatch, the larvae penetrate, making galleries in the crown and damaging the roots. The affected plants initially go unnoticed and over time their growth slows and they end up wilting.

Available solutions:

France	Spain	Italy	Portugal
-	-	-	-

Tetranychus urticae Koch
[Red spider mites / Araña roja]

Description:
The red spider is a 0.6 mm tetranychid mite, with variable color throughout the year, although generally in strawberry trees the adult female is red, and the immature ones and the males are yellow with two black spots. The eggs are round, 0.1 mm and laid mainly on the underside of the leaves.

It is the main pest of strawberry cultivation in the world. It is extremely polyphagous and is found in many other crops and adventitious flora, acting as a reservoir and refuge.

These mites live in colonies, grouped on the underside of the leaves, and produce silk threads that, in addition to giving them protection from predators and pesticides, protect them from low humidity conditions. With a short life cycle and high reproductive potential, it can reach high population levels in a short period of time.

The attack begins on the underside of old leaves, causing loss of chlorophyll and reduction in the photosynthetic rate, leaf development and the quantity and quality of fruits.

Available solutions:

France	Spain	Italy	Portugal
-Héxythizox -Tau-fluvalinate -Spirotetramat (until 04/2025)	- Abamectina - Azufre - Beauveria bassiana - Ciflumetofen ~~- Clofentezin~~ - Fenpiroximato - Hexitiazox* - Maltodextrina	- Abamectina - Beauveria bassiana - Bifenazate (expiration date for strawberry use: 25/6/24)	- abamectina - abamectina + clorantraniliprol - ácidos gordos (na forma de sais de potássio)

-Huile de paraffine -Sels potassiques d'acides gras -Huile essentielle d'orange -Metarhizium brunneum -Beauveria bassiana -Maltodextrine -Soufre	- Metarhizium brunneum cepa Ma 43 - Milbemectina - Sales potásicas de ácidos grasos - Spirotetramat*	- Ciflumetofen - Eoxazole - Fatty acids potassium salts - Fenpiroximato - Hexitiazox* - Maltodextrina - Milbemectina - Pyridaben - Spiromesifen** - Spirorotetrammato* - Sulphur - Tebufenpyrad***	- Beauveria bassiana estirpe ATCC 74040 - Beauveria bassiana estirpe GHA - ciflumetofena ~~- clofentezina~~ - fenepiroximato - hexitiazox* - maltodextrina - Metarhizium anisopliae var. anisopliae estirpe F52 - milbemectina - tebufenepirade

Situation of active substances at European level:

- Clofentezina: caducada por no renovación
- *Hexitiazox: caducidad 31/08/2024
- *Spirotetramat: caducidad 30/04/2024
- **Spiromesifen: no more approved, it can be used until 31/03/2025
- ***Tebufenpyrad: candidate for Substitution

Farmers' needs:

Phytonemus pallidus Banks
[Strawberry mite or cyclamen mite / Araña blanca]

Description:

The white spider is a mite that affects all strawberry production in North America and Europe. The adult is small in size, 0.1 to 0.3 mm, elliptical, white-amber in color, cannot be distinguished with the naked eye, a 20x or more magnifying glass is needed. They have a slow and characteristic shape when moving, because the fourth pair of legs, in the case of females, is reduced to filiform structures and in males it is transformed into two robust pincers that end in a strong nail. Females are more abundant and larger. The eggs are elliptical, translucent and have a smooth surface and the larvae are white and hyaline.

The dispersion of the white spider occurs between plants that are in contact, through stolons, by insects, by the wind or by the workers themselves. If the plant arrives from the nursery infested, it may appear on the seedlings mainly as an adult or egg.

The damage that this pest causes to the crop is derived from feeding. *Phytonemus pallidus* injects a phytotoxic saliva so that the tissues become more succulent, causing their deformation: the leaves curl, wrinkle, the central vein rotates and the flowers and fruits rust. The infested plant has less development, and in case of heavy infestations it dies.

The white spider is considered especially harmful as long as it has adequate relative humidity and temperatures between 13 and 24°C.

Available solutions:

France	Spain	Italy	Portugal
-	- Abamectina - Azufre - Maltodextrina Metarhizium brunneum cepa Ma - Sales potásicas de ácidos grasos - Spirotetramat	- Abamectin - Azadirachtin - Cyflumetofen - Fatty acids potassium salts - Maltodestrina - Spirotetrammato* - Sulphur	- abamectina - abamectina + clorantraniliprol - ciflumetofena - espirotetramato* - maltodextrina

Situation of active substances at European level:

- *Spirotetramat: caducidad 30/04/2024

Farmers' needs:

Frankliniella occidentalils Pergande [Thrips / Trips]

Description:

Thrips are small, elongated-looking insects, approximately 1 mm in size, whose adults are characterized by having membranous wings with long hairs (cilia), with which they make short flights.

There are several species of thrips that affect strawberries, varying their incidence depending on the time of year, such as *Thrips tabaci*, with a greater presence at the end of winter, although the most predominant species is *Frankiniella occidentalis*. This thrips is a floricultural species that is pale yellow to brown in color in the case of females, and pale yellow in the case of males. The variable coloration of females is seasonal, adopting dark brown tones in winter and light yellow in summer. The initially whitish larvae turn light yellow.

F. occidentalis is a very polyphagous species that affects numerous crops and wild flora plants.

Available solutions:

France	Spain	Italy	Portugal
- Terpenoide - Huile essentielle d'orange - Deltaméthrine - Azadiractine - Metharizium brunneum - Cyantraniliprole - Beauvaria Bassiana - Spinosad - Spinetoram	- Aceite de naranja* - Azadiractin - Beauveria bassiana (cepa ATCC 74040; cepa PPRI 5339; cepa GHA) - Deltametrin - Formetanato - Metarhizium brunneum - Piretrinas - Sales potásicas de ácidos grasos - Spinetoram - Spinosad	- Abamectina - Azadirachtin - Cyantraniliprole (expiration date for strawberry use: 15/6/24) - Fatty acids potassium salts - Formentanato - Orange oil - Piretrine - Spinetoram - Spinosade - Tau Fluvalinate - Terpenoid blend	- abamectina - ácidos gordos (na forma de sais de potássio) - Beauveria bassiana estirpe ATCC 74040 - Beauveria bassiana estirpe PPRI 5339 - ciantraniliprol - deltametrina - espinetorame - Metarhizium anisopliae var. anisopliae estirpe F52 - mistura de terpenóides QRD 460 - spinosade - tau-fluvalinato

Situation of active substances at European level:

- *Aceite de naranja: caducidad 31/07/2024
- *Spinetoram: caducidad 30/06/2024

***Aphis gossypii* Glover, *Aphis ruborum* Böner, *Macrosiphum euphorbiae* Thomas, *Myzus persicae* Sulzer, *Acyrthosiphon rogersii* Theobald, *Chaetosiphon fragaefolii* Cockerell**

[Aphids / Pulgones]

Available solutions:

France	Spain	Italy	Portugal
- Huile de paraffine - Deltamétrhine - Azadiracthine - Tau-fluvalinate - Sels potassiques d'acides gras - Cyantraniliprole - Lambda-cyhalothrine - Pirimicarb - Spirotetramat until 04/2025	- Azadiractin - Beauveria Bassiana (Cepa GHA - Ciantraniliprol - Deltametrin - Flupiradifurona - Lambda cihalotrin** - Piretrinas - Pirimicarb - Sales potásicas de ácidos grasos - Spirotetramat	- Acetamiprid - Azadiractin - Beauveria Bassiana (Cepa GHA) - Cyantraniliprole - Deltametrin - Fatty acids potassium salts - Flupiradifurone - Lambda-cyhalothrin** - Pirimicarb - Pyrethrins - Spirotetrammato* - Tau Fluvalinate	- ácidos gordos (na forma de sais de potássio) - ciantraniliprol - deltametrina - espirotetramato* - flupiradifurona - lambda-cialotrina* - óleo parafínico - piretrinas - pirimicarbe - tau-fluvalinato

Situation of active substances at European level:

- **Lambda cihalotrin: caducidad 31/08/2026. Candidata a la sustitución
- *Spirotetramat: caducidad 30/04/2024

Farmers' needs:

Fruit fly / Mosca del vinagre de las alas manchadas (*Drosophila suzukii* Matsurama)

Description:

Available solutions:

France	Spain	Italy	Portugal
- Azadirachtine - Tau-fluvalinate - Cyantraniliprole - Deltaméthrine - Spinetoram - Spinosad	- Deltametrín - Lambda cihalotrin** - Piretrinas - Sales potásicas de ácidos grasos - Spinetoram* - Spinosad	- Acetamiprid - Cyantraniliprole - Deltametrín - Lambda cihalotrin** - Piretrine - Spinetoram	- ácidos gordos (na forma de sais de potássio) - ciantraniliprol - deltametrina - espinetorame* - lambda-cialotrina* - piretrinas - tau-fluvalinato

Situation of active substances at European level:

- **Lambda cihalotrin: caducidad 31/08/2026. Candidata a la sustitución
- *Spinetoram: caducidad 30/06/2024.

Farmers' needs:

DISEASES / MALADIES / ENFERMEDADES / MALATTIE / DOENÇAS

Aphelenchoides fragariae Ritzema-Bos, *Ditylenchus dipsaci* (Kuehn) Filipjev.
[Strawberry curl nematode / Nematodo del rizado de la fresa]

Description:

Available solutions:

France	Spain	Italy	Portugal
Purpureocillium lilacinum	- Fluopiram - Metam potasio - Metam sodio - Purpureocillium lilacinum (cepa 251)	- Azadirachtin - Fluopiram - Geraniolo + Timolo - Metam potassio - Metam sodiium - Purpureocillium lilacinum (cepa 251)	- metame (na forma de sal de sódio)

Situation of active substances at European level:

Farmers' needs:

Meloidogyne spp. [Root-Knot nematodes / Nematodos formadores de nódulos o agallas] and
Pratylenchus penetrans (Cobb) Filip. And Schur. Stekh.
[Root lesion nematodes / Nematodos lesionadores]

France	Spain	Italy	Portugal
- Geraniol + Timol - Purpureocillium lilacinum	- Fluopiram - Geraniol + Timol - Metam potasio - Metam sodio - Purpureocillium lilacinum (cepa 251)	- Azadirachtin - Dazomet - Fluopiram - Geraniolo + Timolo - Metam potassio	- fluopirame - geraniol + timol - metame (na forma de sal de sódio)

		- Metam sodiium - Purpureocillium lilacinum (cepa 251)	- Paecilomyces lilacinus estirpe 251

Phytophthora cactorum (Lebert & Cohn) Schröter. [Phytophthora Crown / Podredumbre de la Corona y Fruto]

Description:

Strawberry plants infected with Phytophthora crown rot frequently occur in patches of wilted and stunted plants. Leaves of infected plants may appear bluish green initially; however as the disease progresses, leaves on infected plants may develop brown necrotic tissue along the leaf margins and between the veins. The plants wilt very quickly during fruit development or during warm or hot weather conditions when plants are demanding water regardless if the soil contains adequate moisture. Symptoms are often first noticed in low areas of a field or rows where water had accumulated for an extended period after irrigation or a heavy rain. Eventually the disease moves along the rows from the patch of initially infected plants. Cutting open the crowns longitudinally with a knife reveals a red or reddish dark brown spongy rot inside infected crowns (Figure 1). The reddish brown discoloration may appear at the base, middle or top of the crown. Often roots attached to the infected crown appear black at the point of attachment. The root systems are also frequently discolored and may have fewer secondary roots

Available solutions:

France	Spain	Italy	Portugal
- Fosetil Al - Phosphonates de potassium -	- Azoxistrobin* - Bacillus amyloliquefaciens subesp. plantarum clonostachys rosea (cepa J1446) - Captan* - Fosetil Al - Fosfonatos de potasio - Metalaxil - Trichoderma asperellum (cepa ICC012; cepa T25)	- Bacillus amyloliquefaciens subesp. plantarum - Copper - Fosetyl Al - Fosfonato di potassio - Metalaxyl-M - Rameici - Trichoderma asperellum	- 8-hidroxiquinolina (na forma de sulfato) - Bacillus amyloliquefaciens estirpe MBI 600 - Bacillus amyloliquefaciens subsp. plantarum estirpe D-747 - cobre (na forma de hidróxido) + metalaxil - fosetil (na forma de sal de alumínio)

		- Trichoderma atroviride	- fosfonatos de potássio - metalaxil - metame (na forma de sal de sódio) - Trichoderma asperellum estirpe ICC012 + Trichoderma gamsii estirpe ICC080 - Trichoderma asperellum estirpe TV1 - Trichoderma atroviride estirpe T11 + Trichoderma asperellum estirpe T25 - Trichoderma gamsii estirpe ICC080 + Trichoderma asperellum estirpe ICC012

Situation of active substances at European level:

- *Azoxistrobin: caducidad 31/12/2024
- *Captan: caducidad 15/11/2024

Farmers' needs:

Colletotrichum spp. [Anthracnose / Antracnosis]

Available solutions:

France	Spain	Italy	Portugal
- Difénocozanole + Cyflufenamid - Cyprodonil + fluodioxonil - Cuivre de Sulfate	- Captan* - Ciprodinil + fludioxonil - Difenoconazol + ciflufenamida - Hidróxido cúprico Oxicloruro de cobre	- Azoxistrobin - Boscalid - Difeconazolo + ciflufenamid - Pyraclostrobin	- Captana* - azoxistrobina - cobre (na forma de oxicloreto)

- Cuivre d'oxyde cuivreaux	- Sulfato cuprocálcico - Azoxistrobin	- Rameici	- difenoconazol + ciflufenamida

Situation of active substances at European level:

- *Captan: caducidad 15/11/2024

Farmers' needs:

Verticillium dahlia Kleb [Verticillium / Verticilosis]

Available solutions:

France	Spain	Italy	Portugal
- Difénocozanole + Cyflufenamid - Cyprodonil + fluodioxonil - Cuivre de Sulfate - Cuivre d'oxyde cuivreaux	- Metam sodio - Trichoderma asperellum (cepa TV-1) - Trichoderma asperellum (cepa ICC012) + Trichoderma gamsii (cepa ICC080)	- Dazomet - Metam sodium - Metam potassium	- Trichoderma asperellum estirpe TV1

Macrophomina phaseolina (Tassi) Goid. [Charcola rot disease / Podredumbre Carbonosa]

Available solutions:

France	Spain	Italy	Portugal
-	-	- Dazomet - Metam sodium - Metam potassium	-

Mycosphaerella fragariae (Tul.) Lindau. [Leaf spot / Mancha púrpura]

Available solutions:

France	Spain	Italy	Portugal
- Oxyde de cuivre -	- Sulfato cuprocálcico - Oxicloruro de cobre	- Copper - Cyflufenamid - Difeconazolo + ciflufenamid - Rameici	- cobre (na forma de oxicloreto)

Podosphaera aphanis (Wallr.) U. Braun & S. Takam. [Powdery mildew / Oídio]

Available solutions:

France	Spain	Italy	Portugal
- Fluopyram + trifloxystrobine - Difénoconazole + Cyflufenamid - Meptyldinocap	- Aceite de naranja - Ampelomices quisqualis - Azoxistrobin* - Azoxistrobin + Difenoconazol	- Ampelomicelis quisqualis - Azoxystrobin - Azoxystrobin + Difénoconazole	- Ampelomyces quisqualis estirpe AQ10 - azoxistrobina - azoxistrobina + difenoconazol

- CYflufenamid - Azoxistrobine + Difénocolazole - Azoxistrobine - Bupirimate - Boscalid - Bicarbonates de potassium - Huile essentielle d'orange - Soufre - Bacillus Amyloliquefaciens ssp plantarum - Bacillus pumilis	- Azufre - Bacillus am - - yloliquefaciens subesp. plantarum - Bupirimato* - Captan - Ciflufenamid Difenoconazol - Difenoconazol + Ciflufenamida - Eugenol + Geraniol - Fluopyram - Fluxapyroxad + Difenoconazol - Hidróxido cúprico + Oxicloruro de cobre - Hidrogenocarbonato de potasio - Kresosim metil* - Laminarin - Meptildinocap - Penconazol - Piraclostrobin + Boscalid - Tetraconazol	- Bacillus amyloliquefaciens - Bacillus pumilus - Bupirimate - Copper - Cos – Oga - Difenoconazole + Cyflufenamid - Eugenol + Geraniol - Fluopyram + Trifloxystrobin - Flutriafol - Fluxapyroxad - Laminarina - Meptildicocap - Myclobutanil - Orange oil - Penconazole - Potassium hydrogen carbonate - Pyraclostrobin + Boscalid - Rameici - Sulphur - Tetraconazole	- Bacillus amyloliquefaciens estirpe MBI 600 - Bacillus amyloliquefaciens subsp. plantarum estirpe D-747 - Bacillus pumilus estirpe QST 2808 - Bupirimato* - ciflufenamida - COS-OGA - difenoconazol - difenoconazol + ciflufenamida - difenoconazol + fluxapiroxade - enxofre - eugenol + timol + geraniol - extrato aquoso de sementes germinadas de Lupinus albus doce - fluxapiroxade - hidrogenocarbonato de potássio - laminarina - meptildinocape - óleo de laranja - penconazol - tetraconazol - trifloxistrobina + fluopirame

Situation of active substances at European level:

- *Azoxistrobin: caducidad 31/12/2024
- *Bupirimato: caducidad 31/08/2024
- *Captan: caducidad 15/11/2024

- *Kresosim metil: caduciad 31/12/2024

Botrytis cinerea Pers.
[Botrytis fruit rot / Botritis]

Available solutions:

France	Spain	Italy	Portugal
- Fluopyram + trifloxystrobine - Boscalid + Pyraclostrobine - Isofétamide - Fenhexamid - Mépanipyrim - Cyprodinil + Fluodioxonil - Pyriméthanil - Penthiopyrad - Clonostachys rosae 1446 - Bacillus subtilis QST 713 - Aureobasidium pullalans - Saccharomyces cerevisiae - Bacillus Amyloquefaciens - Metschnikowia fructicola - Hydrogénocarbonates de Potassium	- Aureobasidum pullulans (cepa DSM 14940) - Bacillus amyloliquefaciens (subesp. plantarum, cepa D747; cepa AH2; cepa FZB24) - Bacillus subtilis (cepa QST 713) - Captan* - Ciprodinil + Fludioxonil - Clonostachys Rosea Cepa J1446 - Eugenol + Geraniol - Fenhexamida - Fenpirazamina - Fluopyram + Trifloxistrobin - Isofetamida - Laminarin - Mepanipirim - Pentiopirad - Piraclostrobin + Boscalida - Pirimetanil - Pythium oligandrum (cepa M1) - Saccharomyces cerevisiae (cepa LAS02)	- Aureobasidum pullulans (cepa DSM 14940) - Bacillus amyloliquefaciens (subesp. plantarum, cepa D747; cepa AH2; cepa FZB24) - Bacillus subtilis (cepa QST 713) - Captano - Cerevisane - Cyprodinil + Fludioxonil - Eugenol + Geraniol - Fenhexamid - Fenpirazamina - Fludioxonil - Fluopyram + Trifloxystrobin - Isofetamide - Laminarin - Mepanipyrim - Penthiopyrad - Pyraclostrobin + Boscalid - Pyrimethanil - Pythium oligandrum	- Aureobasidium pullulans estirpe DSM 14940 + Aureobasidium pullulans estirpe DSM 14941 - Bacillus amyloliquefaciens estirpe AH2 - Bacillus amyloliquefaciens estirpe FZB24 - Bacillus amyloliquefaciens estirpe MBI 600 - Bacillus amyloliquefaciens estirpe QST 713 - Bacillus amyloliquefaciens subsp. plantarum estirpe D-747 - cerevisana - ciprodinil + fludioxonil - Clonostachys rosea estirpe J1446 - eugenol + timol + geraniol - extrato aquoso de sementes germinadas de Lupinus albus doce - fenehexamida

		- Saccharomyces cerevisiae (cepa LAS02)	- fenepirazamina - fludioxonil - isofetamida - laminarina - mepanipirime - pentiopirade - piraclostrobina + boscalide - pirimetanil - Pythium oligandrum estirpe M1 - Saccharomyces cerevisiae estirpe LAS02 - trifloxistrobina + fluopirame

Situation of active substances at European level:

- *Captan: caducidad 15/11/2024

Gnomoniopsis comari (Karst.) Sognov

[Gnomoniopsis fruit rot / Mancha zonal]

Available solutions:

France	Spain	Italy	Portugal
-	-	- Azoxystrobin - Penconazole - Pyraclostrobin + boscalid	-

Xanthomonas fragariae Kennedy & King.
[Bacterial angular leaf spot disease / Mancha aceitosa]

Available solutions:

France	Spain	Italy	Portugal
-	- Fosetil Al - Cobres (Hidróxido cúprico; Sulfato cuprocálcico)	- Copper: oxide, sulphate - Fosetil Al - Rameici	-

Fusarium sp.; Phytophthora sp.; Rhizoctonia sp.; Rhizopus sp.; Pythium sp.; Cladosporium sp.; Alternaria sp.; Penicilium sp.
[Soil fungi / Hongos del suelo]

Description:

Soil fungi are among those that cause the most damage to strawberry crops. Among them, we can highlight: *Fusarium* sp., *Phytophthora* sp., *Rhizoctonia* sp., *Rhizopus* sp., *Pythium* sp., *Cladosporium* sp., *Alternaria* sp. and Penicillium sp. These fungi affect the strawberry crop from the roots, generating rot. Some of them affect the fruits after being harvested as well, so in the case of strawberries it is advisable to preserve them post-harvest at low temperatures as soon as possible, and not break the cold chain.

Available solutions:

France	Spain	Italy	Portugal

-	- Metam sodio - Metam potasio - Trichoderma Asperellum (Cepa TV-1)	- Coniothyrium minitans - Metam sodio - Metam potasio - Trichoderma Asperellum	- Bacillus amyloliquefaciens subsp. plantarum estirpe D-747 - Trichoderma harzianum estirpe T-22

Farmers' needs:

- 1.3 dicloropropeno + cloropicrina

HERBICIDES / HERBICIDAS / ERBICIDI

Post-emergencia

France	Spain	Italy	Portugal
- Quizalofop éthyl - Fluazifop-p-butyl - Acide pélargonique	- Acido pelargónico* - Glifosato* (pre-plantación cultivo) - Metam potasio* (pre-plantación cultivo) - Metam sodio* (pre-plantación cultivo) - Pendimetalina* (pre-plantación cultivo) - Quizalofop-p-etil	- Acido pelargonico - Dazomet - Fluazifop-P - Glifosato - MCPA - Metam potassio - Metam sodium - Pendimetalin - Quizalofop – p etile - Sodium hydrogen carbonate	- ácido pelargónico* - fluazifope-P (na forma de éster butílico) - metame (na forma de sal de potássio)* - pendimetalina* - quizalofope-P (na forma de éster etílico)

Situation of active substances at European level:

*Metam potasio: caducidad 30/06/2024
*Metam sodio: caducidad 30/06/2024
*Acido pelargónico: caducidad 31/08/2024
*Pendimetalina: caducidad 30/11/2024

*Glifosato: caducidad 30/06/2025

3. Análisis de los datos

La tabla presenta una comparación estructurada de las sustancias activas autorizadas por clasificadas por grupos para el cultivo de fresa en los cuatro países. Esta disposición permite analizar tanto la disponibilidad interna de soluciones en cada país como las diferencias entre ellos, revelando una clara heterogeneidad en la disponibilidad de soluciones fitosanitarios.

Active Substances				
Countries	Disease	Herbicide	Pests	Total general
France	9		4	13
FranceItaly	2			2
FranceItalyPortugal	1	1	4	6
FrancePortugal	1		4	5
Italy	23	3	8	34
ItalyPortugal	5		6	11
Portugal	19		4	23
Spain	10		1	11
SpainFrance	1		3	4
SpainFranceItaly	5		6	11
SpainFranceItalyPortugal	20	2	22	44
SpainFranceItalyPortugal	1			1
SpainFrancePortugal	3		3	6
SpainItaly	15	2	5	22
SpainItalyFrance	1			1
SpainItalyPortugal	12	2	15	29
SpainPortugal	3		2	5
(en blanco)				
Total general	**131**	**10**	**87**	**228**

ESPAÑA

ESPAÑA		
Solutions available in Spain	135	59,21%
Solutions NOT available in Spain	93	40,79%
Sustancias Activas Totales	228	100,00%
Sustancias Activas Habilitadas fuera de España		
Disease	59	63,44%
Herbicides	4	4,30%
Pests	30	32,26%
Sustancias activas totales Fuera	93	100,00%
% Sustancias Activas Habilitadas Fuera de España sobre el total		
Disease	45,04%	
Herbicides	40,00%	
Pests	34,48%	
TOTAL	40,79%	

FRANCIA

FRANCIA		
Solutions available in France	93	40,79%
Solutions NOT available in France	135	59,21%
Sustancias Activas Totales	228	
Sustancias Activas Habilitadas fuera de Francia		
Diseases	87	64,44%
Herbicides	7	5,19%
Pests	41	30,37%
Sustancias activas totales Fuera	135	
Porcentaje de Sustancias Activas Habilitadas Fuera de Francia sobre el total		
Diseases	66,41%	
Herbicides	70,00%	
Pests	47,13%	
TOTAL	59,21%	

ITALIA

ITALIA		
Solutions available in Italy	161	70,61%
Solutions NOT available in Italy	67	29,39%
Sustancias Activas Totales	228	
Sustancias Activas Habilitadas fuera de Italia		
Diseases	46	68,66%
Herbicides		0,00%
Pests	21	31,34%
Sustancias activas totales Fuera	67	
Porcentaje de Sustancias Activas Habilitadas Fuera de Italia sobre el total		
Diseases	35,11%	
Herbicides	0,00%	
Pests	24,14%	
TOTAL	29,39%	

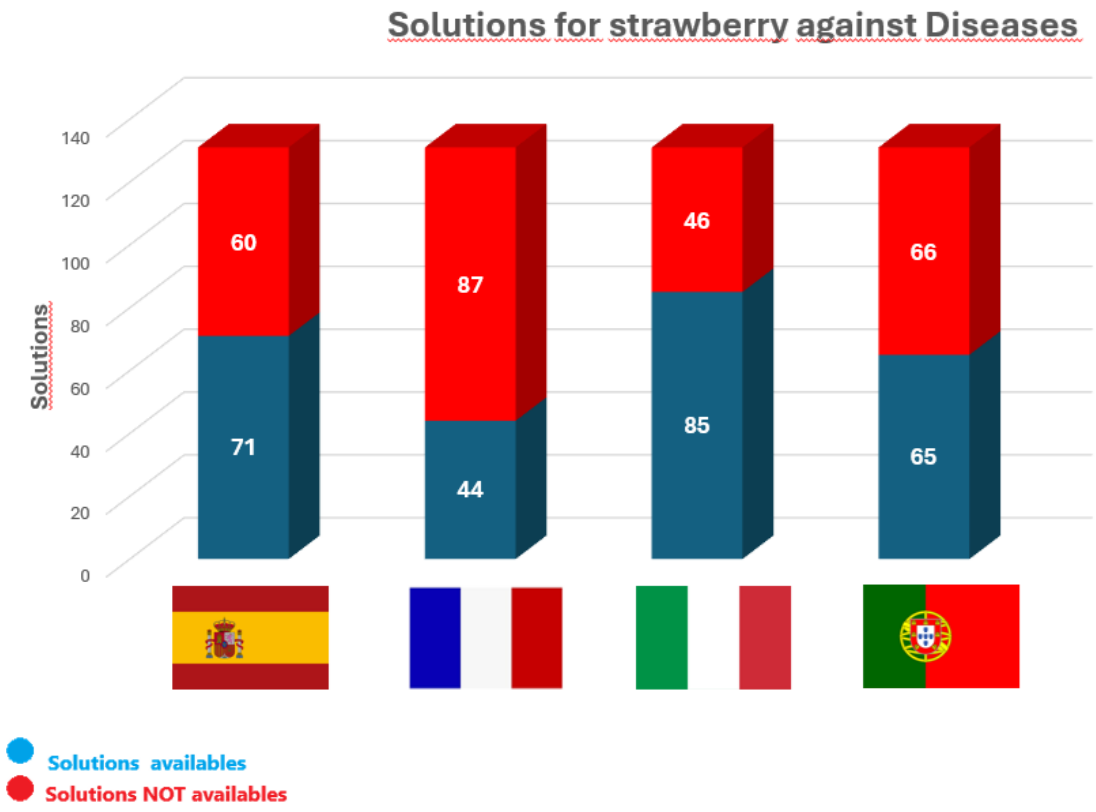
PORTUGAL

PORTUGAL		
Total sust.activas habilitadas en Portugal	130	57,02%
Total sust.activas habilitadas fuera de Portugal	98	42,98%
Sustancias Activas Totales	228	
Sustancias Activas Habilitadas fuera de Italia		
Diseases	66	67,35%
Herbicides	5	5,10%
Pests	27	27,55%
Sustancias activas totales Fuera	98	
Porcentaje de Sustancias Activas Habilitadas Fuera de Italia sobre el total		
Diseases	50,38%	
Herbicides	50,00%	
Pests	31,03%	
TOTAL	42,98%	

FINAL GRAPHIC COMPARATIONS

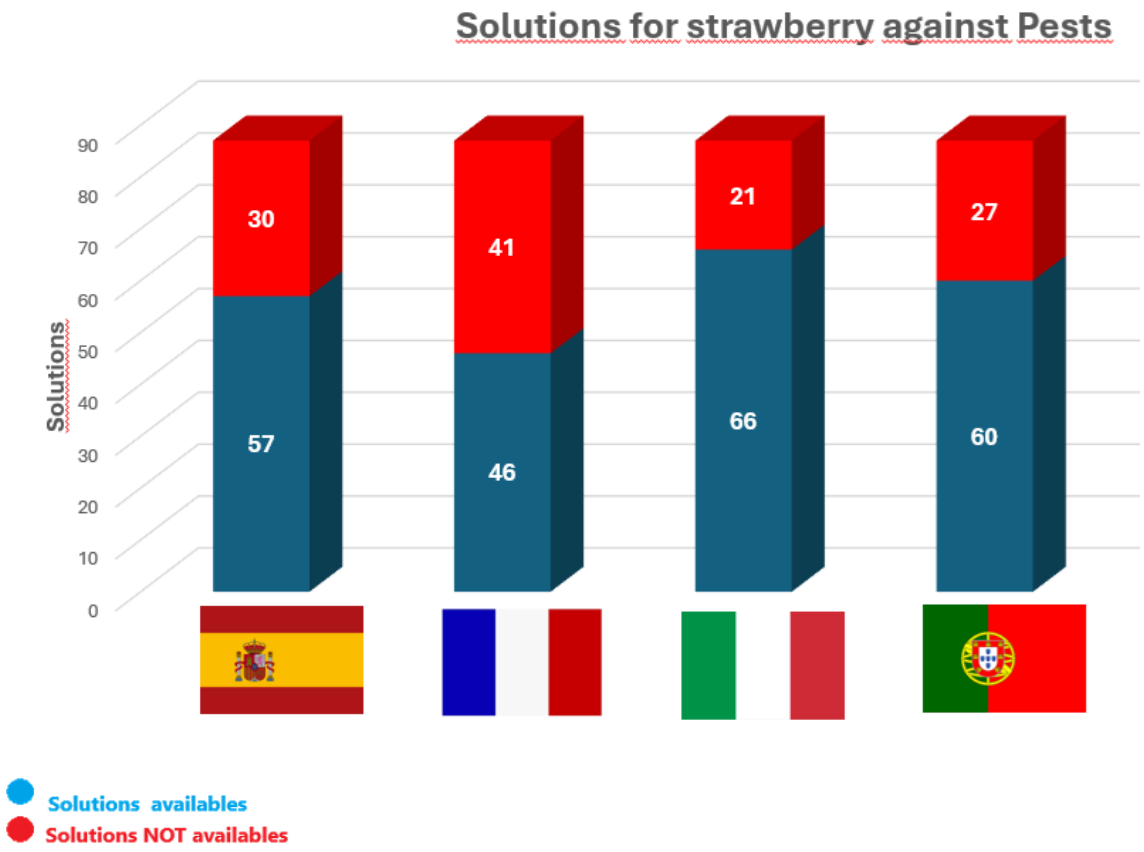
Diseases

Issue	Total Solutions	Solutions NOT available in Spain		Solutions NOT available in France		Solutions NOT available in Italy		Solutions NOT available in Portugal	
Diseases	**131**	60	**45,80 %**	87	**66,41%**	46	**35,11 %**	66	**50,38 %**



Pests

Issue	Total Solutions	Solutions NOT available in Spain		Solutions NOT available in France		Solutions NOT available in Italy		Solutions NOT available in Portugal	
Pests	**87**	30	**34,48 %**	41	**47,13 %**	21	**24,14 %**	27	**27,55 %**



Herbicides

Issue	Total Solutions	Solutions NOT available in Spain		Solutions NOT available in France		Solutions NOT available in Italy		Solutions NOT available in Portugal	
Herbicides	**10**	4	**40,00 %**	7	**70,00 %**	0	0%	5	**50,00 %**