REPUBLIC OF CROATIA
MINISTRY OF AGRICULTURE

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EUROPEAN COMMISSION
DIRECTORATE GENERAL FOR
AGRICULTURE AND RURAL DEVELOPMENT
Mr Jerzy Bogdan PLEWA
Director-General
Rue de la Loi 130 / Wetstraat 130
1000 Bruxelles / Brussel
Belgique

Subject: The National framework for environmental actions for Croatia

Dear Mr Plewa,

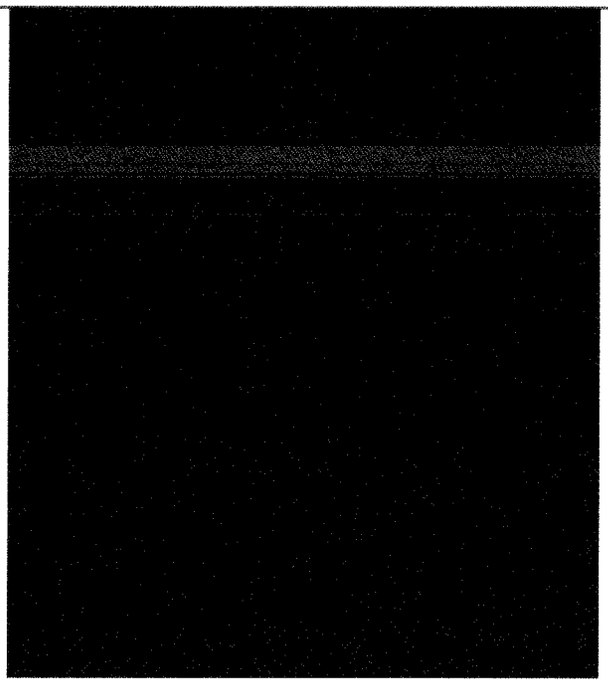
According to Article 36 of *Regulation (EU) No. 1308/2013 of the European Parliament and of the Council of 17 December 2013 establishing a common organisation of the markets in agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001 and (EC) No 1234/2007* we have prepared the National framework for environmental actions for Croatia.

In this official communication, please find the attached National framework for environmental actions for Croatia for your approval.

Sincerely,

DEPUTY PRIME MINISTER
AND MINISTER OF AGRICULTURE

Tomislav Tolušić, dipl. iur.



National Framework for Environmental Actions for Croatia

NATIONAL FRAMEWORK FOR ENVIRONMENTAL ACTIONS

The National Framework for Environmental Actions (hereinafter: the National Framework) regulates the terms and conditions for the implementation of environmental actions planned for by operational programmes of producer organisations in the fruit and vegetable sector in order to reduce the environmental impact that may occur during the production.

Producer organisations in the fruit and vegetable sector are obliged to comply with production techniques, which respect the environment, as well as other production and waste management techniques, which pay special attention to the protection of water and soil quality and the preservation of landscapes and biodiversity.

Operational programmes of producer organisations shall cover two or more environmental actions or at least 10% of the costs allocated for environmental actions.

Environmental actions shall comply with the commitments related to agri-environmental-climate, or the commitments related to organic production.

If at least 80% of the producer organization members are subject to one or more of the same commitments with regard to agri-environmental-climate or commitments relating to organic production referred to in Article 28 paragraph 3 and Article 29 paragraphs 2 and 3 of Regulation (EU) No. 1305/2013, each of those commitments is considered an environmental action.

Support for environmental actions from the subject National Framework includes additional expenses and unrealized income resulting from actions.

CONNECTION TO THE RURAL DEVELOPMENT PROGRAMME

If, within the framework of the Rural Development Programme of the Republic of Croatia, a support has been granted for procedures that are equivalent to procedures that may be eligible under the National Framework, the beneficiary may receive support for a particular action only within one system.

The amount of support for environmental actions from the subject National Framework shall not exceed the amount of support applied to measures within the Rural Development Programme of the Republic of Croatia.

Support for environmental actions that are equivalent to commitments with regard to agri-environmental-climate or commitments relating to organic production referred to in Articles 28 and 29 of Regulation (EU) No. 1305/2013 is limited to the maximum amounts set in Annex II of Regulation (EU) No. 1305/2013 with regard to agri-environmental-climate or commitments relating to organic production.

The rules adopted by the producer organisation contain provisions ensuring that no member has already received support using other instrument of the Common Agricultural

Policy, in particular through the Rural Development Programme of the Republic of Croatia and promotion or within national or regional programs for a particular activity.

The Paying Agency in Agriculture, Fisheries and Rural Development (hereinafter: Paying Agency) shall perform the control of the producer organisation in order to check that, for the environmental actions for which they have planned to receive support within their operational programme, they have not already been granted support.

Environmental actions that are equivalent to commitments with regard to agri-environmental-climate or organic farming under the Rural Development Programme of the Republic of Croatia have the same duration as those obligations. If the duration of the action is longer than the duration of the operational programme, the action shall be continued in the next operational programme.

Exceptionally, in justified cases, environmental actions may last shorter or may even be cancelled, especially if the results of the assessment in the penultimate year of implementation of the operational programme are taken into account.

The assessment examines the progress realized with respect to the overall operational programme objectives. For this purpose, common performance indicators are used with regard to the initial state, realization and results.

The assessment may include a qualitative assessment of results and effects of environmental actions directed at:

(a) preventing soil erosion
(b) reducing use or a more rational use of plant protection products
(c) protecting habitats and biodiversity, and
(d) preserving the landscape.

The results of the subject assessment should serve:

(a) to improve the quality of the operational programme
(b) to identify the need for significant changes to the operational programme; and
(c) to gain insights useful for improvement of future operational programmes.

Report on the producer organisation assessment is attached to the annual report on operational programme implementation.

GENERAL REQUIREMENTS FOR THE IMPLEMENTATION OF ENVIRONMENTAL ACTIONS

The National Framework establishes an open list of environmental actions and the conditions under which they are applied. The list include the following environmental actions:

(a) actions equivalent to commitments with regard to agri-environmental-climate or organic farming under the Rural Development Programme of the Republic of Croatia
(b) investments beneficial for the environment

(c) other actions beneficial for the environment, including those which do not relate directly or indirectly to a particular parcel but that are linked to the fruit and vegetables sector, provided they contribute to soil protection, water or energy saving, improvement or maintenance of water quality, habitats or biodiversity protection, climate change mitigation and reduction or improved management of waste.

For each environmental action referred to in (b) and (c), the following is stated:

(a) the justification of the action on the basis of its environmental impact

(b) the specific commitments entailed.

The national framework also includes actions related to the application of integrated pest management practices.

Investments beneficial for environment made at the premises of producer organisations, associations of producer organisations or subsidiaries complying with the 90 % requirement referred to in Article 22 paragraph 8 of Delegated Regulation (EU) 2017/891, or at the premises of their producer members shall be eligible for support if they:

(a) could achieve a reduction in the current use of production inputs, emission of pollutants or waste from the production process or

(b) could achieve replacement of the use of fossil energy sources with renewable energy sources or

(c) could achieve a reduction in the environmental risks linked to the use of certain production inputs, including plant protection products or fertilisers or

(d) lead to improvement of the environment or

(e) are linked to non-productive investments needed to achieve the objectives of an agri-environmental-climate or organic farming commitments, in particular where those objectives relate to the protection of habitats and biodiversity.

These investments are fully eligible for granting of the support.

A) REDUCTION IN THE CURRENT USE OF PRODUCTION INPUTS, EMISSION OF POLLUTANTS OR WASTE FROM THE PRODUCTION PROCESS

Investments beneficial for environment shall be eligible for support if they could achieve a reduction of at least 15 %, calculated over the fiscal depreciation period of the investment compared to the pre-existing situation of:

(a) the use of production inputs that are non-renewable energy sources, such as water or fossil fuels, or possible source of environmental pollution, such as fertilisers, plant protection products or certain types of energy sources

(b) the emission of air, soil or water pollutants from the production process or

(c) the production of waste, including waste water, from the production process.

Provided that those investments allow for at least one additional environmental benefit, investments that allow for a reduction of at least 7 %, calculated over the fiscal depreciation period of the investment compared to the pre-existing situation may also be eligible.

The expected reduction and, where applicable, the expected additional environmental benefit, shall be demonstrated ex ante through project specifications or other technical documents to be presented by the producer organisation or association of producer organisations at the moment of the submission of the proposed operational programme or of the amendment of such a programme for approval, showing the results that could be obtained through the implementation of the investment, as attested by the technical documents or by an independent qualified body or expert agreed by the Member State.

Investments aimed to achieve a reduction in water use shall:

(a) provide for a reduction of at least 5 % in water use in drip irrigation or similar systems compared to the consumption prior to the investment and

(b) not result in a net increase of the area under irrigation, unless the total water consumption for irrigation of the whole farm, including the increased area, does not exceed the average of water consumption of the previous five years prior to the investment.

B) USE OF RENEWABLE ENERGY SOURCES INSTEAD OF FOSSIL FUELS

Investments including systems which generate energy (renewable energy sources) shall be eligible for support if the amount of energy generated does not exceed the amount that can be used ex ante on a yearly basis for the actions related to fruit and vegetables by the producer organisation, association of producer organisations, subsidiary or the producer organisation's members that benefit from the investment.

C) USE OF PRODUCTION INPUTS, INCLUDING PLANT PROTECTION PRODUCTS OR FERTILISERS WHICH REDUCE THE ENVIRONMENTAL RISK OR IMPROVE THE ENVIRONMENT

Investments that can reduce environmental risks associated with the use of certain production inputs, including plant protection products or fertilisers, or those which improve the environment, shall be eligible for support where they contribute to soil protection, water or energy saving, improvement or maintenance of water quality, habitats or biodiversity protection, climate change mitigation, and reduction or improved management of waste, although their contribution is not quantifiable.

The producer organisation or association of producer organisations shall provide evidence of the expected positive contribution to one or more environmental objectives at the moment of the submission for approval of the proposed operational programme or amendment of such a programme.

Various environmental actions may be combined provided that they are complementary and compatible. Where environmental actions other than investments in physical assets are combined, the level of support shall take account of the specific income foregone and additional costs resulting from the combination.

Commitments to limit the use of fertilisers, plant protection products or other production inputs shall be accepted only if such limitations can be assessed in a way that provides assurance about compliance with those commitments.

According to Article 33 (5) of Regulation (EU) No 1308/2013 of the European Parliament and of the Council, environmental actions selected in the operational programs shall respect:

- the requirements for agri-environment-climate commitments laid down in Article 28 (3) of Regulation (EU) No 1305/2013 going beyond:
    a) the relevant mandatory standards established pursuant to Chapter I of Title VI of Regulation (EU) No 1306/2013 of the European Parliament and of the Council (prescribed the statutory management requirements under Union law and the standards for good agricultural and environmental condition of land established at national level)
    b) the relevant criteria and minimum activities as established pursuant to points (c)(ii) and (c)(iii) of Article 4 (1) of Regulation (EU) No 1307/2013 of the European Parliament and of the Council, and
- the relevant minimum requirements for fertiliser and plant protection products use as well as other relevant mandatory requirements established by national law.

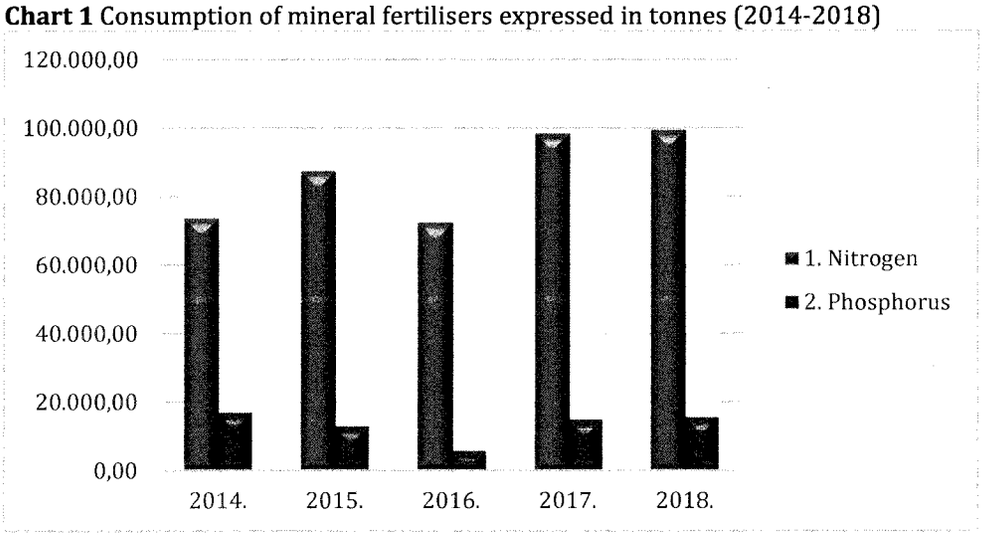
ANALYSIS OF THE SITUATION IN THE REPUBLIC OF CROATIA IN RELATION TO ENVIRONMENTAL REQUIREMENTS

Consumption of mineral fertilisers

According to the data of the Croatian Bureau of Statistics, in the period from 2014 to 2018, the consumption of mineral fertilisers in tonnes of active substance amounted to an average of:

- 86.252,02 t of nitrogen and
- 13.202.06 t of phosphorus.

Chart 1 Consumption of mineral fertilisers expressed in tonnes (2014-2018)



Source: Croatian Bureau of Statistics

Organic fertilisers originating from livestock breeding

According to the data from the Croatian Agricultural Agency, 740,266 livestock units of farm animals were bred in 2012 in the Republic of Croatia. Based on these numbers, it is estimated that a total of approximately 10 mil. t of manure were produced in 2012 in the Republic of Croatia.

Storage and application of manure contributes with 60.1%, and the use of fertilizers with 23.7% in emissions of NH_3.[1]

Since the manure is a valuable source of nitrogen and phosphorus, producers are obliged to use the manure in accordance with Directive 2016/2284 of the European Parliament and Council. [2].

Vulnerable zones

[1] Informative Inventory Report for Croatia, 2018

[2] Directive (EU) 2016/2284 of the European Parliament and of the Council of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC (OJ L 344, 17.12.2016.)

Vulnerable zones have been defined by the Decision on determining vulnerable zones in the Republic of Croatia (*Official Gazette of the Republic of Croatia,* No. 130/12) according to which 9% of the Croatian territory has been declared a vulnerable zone on which pollution caused by agricultural action has been determined. The pollution was determined according to the presence of nitrogen in the surface and ground waters and according to the eutrophication of surface waters.

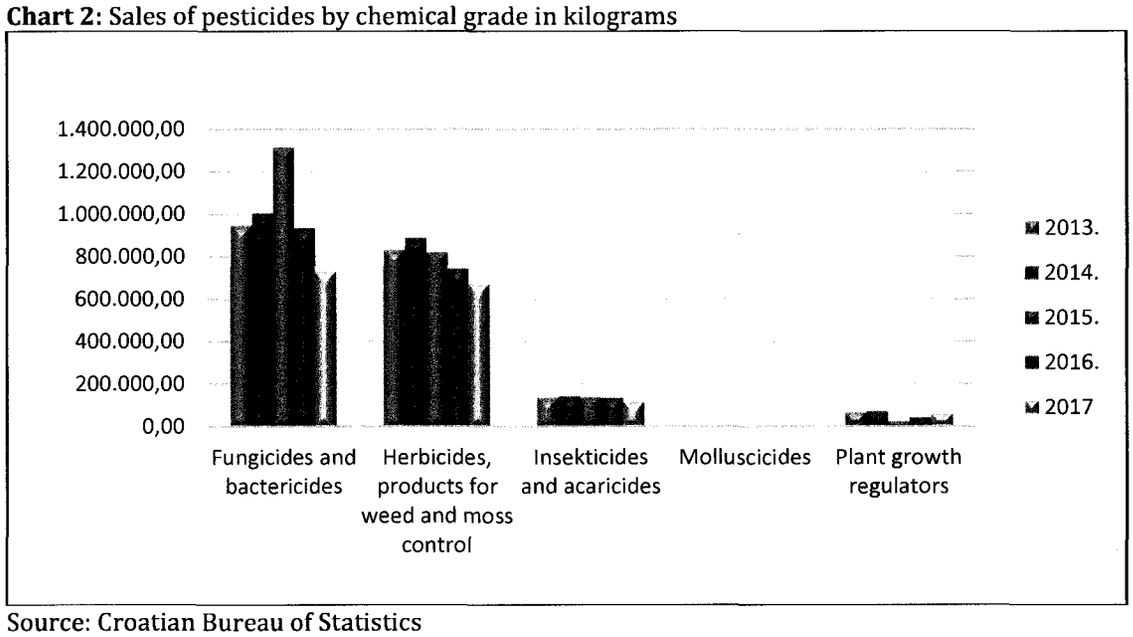
In the subject area the provisions of the Action programme for the protection of waters against pollution caused by nitrates from agricultural sources (*Official Gazette of the Republic of Croatia*, No. 60/17) have been implemented, which specifically refer to good agricultural practice in the use of fertilizers on agricultural areas, the method of storing and disposing of fertilizers, using watercourses in the vicinity and other requirements governing good manure management on farms. The Action programme for the protection of waters against pollution caused by nitrates from agricultural sources is in line with Council Directive of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC).[3]

The provisions of the Action programme for the protection of waters against pollution caused by nitrates from agricultural sources present an obligation for agricultural producers engaged in agricultural action in sensitive areas and a recommendation for agricultural producers outside the sensitive areas and as such present a guideline for good manure management on the entire territory of the Republic of Croatia.

Plant protection products

The use of plant protection products varies throughout the year depending on climate, environmental, economic and other conditions.

Chart 2: Sales of pesticides by chemical grade in kilograms



Source: Croatian Bureau of Statistics

[3] COUNCIL DIRECTIVE of 12 December 1991 concerning the protection of waters against pollution caused by nitrates from agricultural sources (91/676/EEC) (OJ L 375, 31.12.1991, p. 1)

Pursuant to Directive 2009/128/EC[4], in 2013 the Republic of Croatia has adopted a National Action Plan for the Sustainable Use of Pesticides for the period 2013-2023. (hereinafter: NAP), which aims to reduce the risks to health of human, animal and environment related to pesticide use and to encourage of integrated pest management and alternative measures to combat harmful organisms.

In developing NAP, the health, social, economic and environmental effects of the planned measures, as well as specific national, regional and local conditions were taken into account.

Integrated plant protection activities carried out by a producer organization must comply with the general principles of integrated plant protection set out in Annex III. Directive 2009/128/EC and NAP.

Producer organizations are encouraged to invest in research, development and innovation and new technology in product manufacturing and product marketing, including packaging, integrated plant protection (IPM), renewable energy and waste.

Soil pollution due to agriculture

The Agricultural Land Act (*Official Gazette of the Republic of Croatia, No. 20/18, 115/18)* regulates the monitoring and protection of agricultural land from pollution. The Ordinance on the protection of agricultural land against pollution (*Official Gazette of the Republic of Croatia, No. 9/14)* prescribes the maximum levels of harmful substances in agricultural land.

Soil erosion in Croatia

More than 90% of soils in Croatia are affected by soil erosion.

According to the data of the Faculty of Agriculture, University of Zagreb, the loss of agricultural soils caused by erosion in the Republic of Croatia is estimated at 3.8 to 4 million tons per year. The most fertile soil in Croatia (crutches and eutrophic brown soil) has lost 50 to 70% of organic matter during the previous hundred years of processing, and humus has fallen from an average of 4 to 6% to 1 to 2%.

The most important agricultural soil in Croatia has lost from 2.1 to 2.8% of organic matter, i.e. 2.5% of organic matter over the last 30 years, in the last 50 years. At meliorated soils, in the period of about 20 years, the amount of humus has dropped from 6 to 10% to 4 to 5%, while most of the agricultural soils in the Republic of Croatia today have humus content of 1.5 to 2.5%.

In order to protect soils from further degradation, it is necessary to manage and implement adequate protection measures against erosion.

In order to protect the soil from erosion and at the same time raise the level of organic matter in soils where intensive agricultural production has been reduced, the producers

[4] DIRECTIVE 2009/128/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides (Text with EEA relevance)

of fruits and vegetables are encouraged to use to a greater extent of mulching, manure, compost, liquid manure and slurry and green manure. Also, they are encouraged to keep plant residues on the ground instead of burning them and to apply reduced soil treatment systems or completely omit soil treatment etc.

Air quality and greenhouse gas emissions

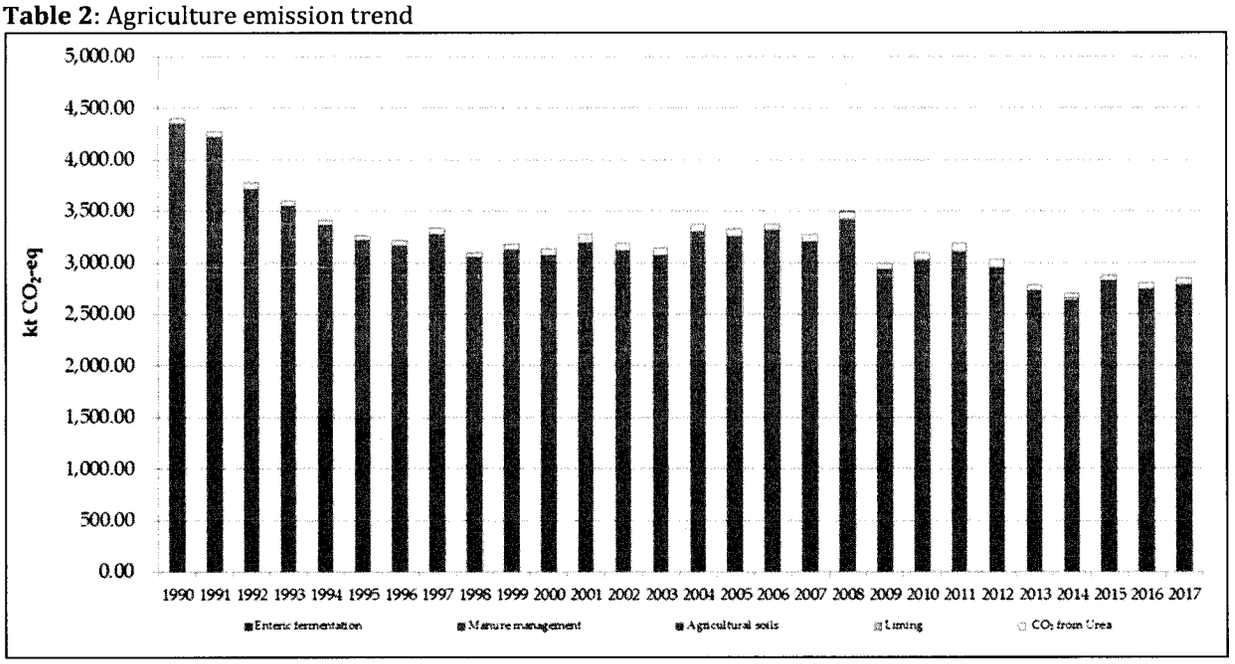
Agricultural action has a direct impact on greenhouse gas emissions through a variety of processes. Particularly important are:

- intestinal fermentation of domestic animals (CH_4) and manure management (CH_4, N_2O)
- agricultural land (N_2O)
- calcification and application of urea (CO_2)

The total emission in 2017 caused by agricultural activities amounted to 2,844.64 kt CO_2-eq, which represents 11.35 % of the total national emission.

Methane and nitrous oxide are the primary sources of greenhouse gas emissions from the agricultural sector, and dairy cattle are the largest source of methane emissions.

Table 2: Agriculture emission trend



Source: National Inventory Report 2019 (NIR2019)

According to the first climate and energy package, the EU objective by 2020 is:

- 20 % reduction in greenhouse gas emissions compared to 1990
- 20 % increase in energy from renewable sources
- 20 % improvement in energy efficiency.

According to the climate and energy framework, the EU objective by 2030 is:

- at least 40 % reduction in greenhouse gas emissions compared to 1990
- 32 % increase in energy from renewable sources
- 32.5 % improvement in energy efficiency.

Agriculture is a sector, which is included in non-ETS sectors, for which Croatia has biding annual emission allocation, defined in order to achieve the goal for Croatia to limit its emissions from non-ETS sectors up to + 11% till 2020, and -7% by 2030, in comparison with level of emissions in 2005.

The obligations arising from the Common Agricultural Policy are binding to agricultural producers with regard to respecting the rules of cross compliance on areas they use, as well as in the breeding of domestic animals they perform.

The new programming period of the Common Agricultural Policy also introduced additional obligations regarding environmental and climate protection, i.e. *greening* measures representing additional responsibilities for farms.

By applying the measures from the Rural Development Programme of the Republic of Croatia, the agricultural sector shall significantly participate in mitigating climate change and other negative environmental impacts.

The NH_3 emission in 2017 amounted to 37.6 kt. Emission has decrease by 32.9 % since 1990 and by 1.3 % since year before.

About 84.6 % of NH_3 emissions in Croatia in 2017 originate from the Agriculture sector, 6.6 % from the sector of Industrial processes and product use (production of ammonia, nitric acid and mineral N-fertilizers), 5.5 % from the Small combustion sector and mobile machinery with dominance of emission from Residential; 1.6 % from Waste sector (Latrines) and 1.3 % from Transport sector (passenger cars).[5]

Since 1990, NH_3 emission has been significantly reduced, and this is due to emission reductions in the sectors of Agriculture, Industrial processes and product use, Small combustion and Waste.

The decrease in the Agricultural sector is 71.8% as a result of the continuous decrease in the number of animals for most types. Decrease in the sector Industrial processes and product use is 30.2% and is the result of reduced production.

In compliance with obligations under the Air Protection Act (*Official Gazette No. 130/11, 47/14, 61/17, 118/18)* and the Regulation on National Obligations to Reduce Emissions of Certain Pollutants in Air in the Republic of Croatia *(Official Gazette, No. 76/18)*, through which the provisions of Directive (EU) 2016/2284 of the European Parliament and of the Council[6] have been transposed into Croatian legislation, Croatia is obliged to adopt an Air Pollution Control Programme. Air Pollution Control Programme aims to meet the

[5] Informative Inventory Report for Croatia, 2018

[6] DIRECTIVE (EU) 2016/2284 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 14 December 2016 on the reduction of national emissions of certain atmospheric pollutants, amending Directive 2003/35/EC and repealing Directive 2001/81/EC

emission reduction obligations of air pollutants in the air for sulphur dioxide (SO2), nitrogen oxides (NOx), non-methane volatile organic compounds (NMVOC), ammonia (NH_3) and particulate matter ($PM_{2,5}$) for the period from 2020 to 2029 and from 2030 onward. In addition, Programme includes a series of sectoral but also cross-sectoral measures aimed at reducing air pollution and improving its quality.

Biodiversity and agriculture

Due to its specific geographical position at the crossroads between three regions – the mountainous, Mediterranean and continental, as well as specific ecological, climate and geomorphological conditions, the Republic of Croatia has a high level of biological diversity.

According to the diversity of plant species (0.080 species/km^2 or 0.088 species/km^2 including subspecies), Croatia ranks third in Europe.

There are nearly 3,000 species from 16 different taxonomic groups that are located on the Red List of the Republic of Croatia, of which more than 45% of species are at risk. The total number of known species and subspecies amounts to almost 40,000, and the assumption is that it can be up to three times as many. In addition to wild animals and plants, biodiversity of Croatia is enriched by domestic animals and crops. Currently, the endangerment of 26 breeds of domestic animals (3 cattle, 2 pig, 9 sheep, 3 goat, 2 poultry, 4 horses and 3 donkey breeds) and 104 native and traditional varieties of agricultural plants (67 varieties of continental fruit, 6 varieties of Mediterranean fruit, 14 grape varieties and 17 vegetable varieties).

Structural issues

Going through a complex and difficult transition process, significant developments were recorded in the agriculture of the Republic of Croatia in terms of changes in the ownership structure at farms, their consolidation, technical and technological modernization of production, improving the product quality, meeting the standards and a market way of thinking and behaving.

ENVIRONMENTAL ACTIONS ELIGIBLE IN OPERATIONAL PROGRAMMES

ACTIONS THAT ARE EQUIVALENT TO COMMITMENTS RELATED TO AGRI-ENVIRONMENTAL-CLIMATE OR ORGANIC FARMING COMMITMENTS FROM THE RURAL DEVELOPMENT PROGRAMME

eligible expenditure

the amount of support shall be limited to the maximum amounts laid down in Annex II of Regulation (EU) No 1305/2013 for agri-environment-climate payments or for organic farming payments

commitments

commitments in these actions are equivalent to commitments with regard to agri-environmental-climate or organic farming under the Rural Development Programme of the Republic of Croatia for the period 2014-2020.

1. PRESERVATION OF SOIL QUALITY

1.1. soil tillage and sowing on the ground with a slope for annual field crops

explanation

soil erosion is a natural process in which the surface layer of soil is displaced by the action of water and wind and the humus layer is lost

erosion process is particularly increased in the case of inadequate use of sloped agricultural land

in order to mitigate the negative effects of erosion or prevent erosion on the fields, it is important to perform tillage and sowing vertically with regard to inclination, thus preventing or reducing the direct removal of the humus layer of soil

provide soil coverage with vegetation throughout the year so that the root system can retain the humus layer and thereby reduce the impact of intense rain

2. CREATION AND/OR MAINTENANCE OF HABITATS, BIODIVERSITY AND LANDSCAPE

2.1. formation of field strips

explanation

intensive agricultural production increases the environmental pressure causing soil organic matter loss, soil erosion, water pollution and loss of numerous species due to the

wide use of fertilisers and plant protection products, as well as due to the destruction of natural habitats

birds, insects and small mammals disappear from nature because they cannot survive on large, homogeneous, field areas

in order to mitigate the adverse effects on biodiversity, especially in areas where an intensive type of agricultural production dominates with large fields, the field strips are imposed as an acceptable solution

they can be a mixture of grass or flowers, with flower strips primarily providing a habitat for pollinators or other insects beneficial for pest control, while grass strips represent important habitats for feeding and nesting of some bird species, such as Corn Bunting (*Emberiza calandra*), Grey Partridge (*Perdix perdix*) and Yellowhammer (*Emberiza citrinella*)

through the establishment of habitats, various plant and animal species are protected, the quality of the landscape is improved and the total biodiversity of the fields is increased

2.2. maintaining of extensive orchards

explanation

extensive orchards are part of the traditional Croatian landscape

extensive orchards are characterized by high trees, low plant density, large spaces between fruit trees and grassed area under the trees that are maintained by mowing and/or grazing

due to the combination of grass and fruit trees, they are extremely rich in plant and animal species - from lichens, mushrooms and moss to insects, birds and small mammals

conventional orchards without cover crops are a major source of CO2, mainly due to the emission of the subject greenhouse gas during inter-row soil maintenance, which is again associated with the combustion of fossil fuels for machinery

the survival of extensive orchards is important if we want to maintain a characteristic landscape, maintain a high level of biodiversity and contribute to the reduction of carbon dioxide emissions into the atmosphere

extensive orchards remove CO_2 from the atmospheric system by bonding it to growing tree biomass, where the organic grass residues help in increasing the amount of carbon in the soil

since the synthetic fertilisers and plant protection products are not used, the biodiversity in the orchard is maintained at an optimum level

2.3. dry stonewalls maintenance

explanation

dry stonewalls are a part of the rich cultural heritage of the Republic of Croatia and a recognizable feature of the landscape, mostly on the coast and on the islands
traditional dry stonewalls constructions were built using a unique technique of placing stone without plaster and cement, which allowed it to be fully integrated into the surrounding landscape

they were primarily erected as a boundary between agricultural plots, i.e. to clear and prepare the rocky soil for agricultural production, while limiting the movement of livestock

thanks to a specific microclimate, dry stonewalls provide conditions for survival of various, especially thermophilic species, thus forming numerous habitats

the surfaces of the dry stonewalls are covered in moss and lichens, whereas in the cracks of the stones grows a specific wild flora; they are at the same time important habitats for insects, reptiles and amphibians and some species of birds

due to their linear structure, dry stonewalls are a significant feature of the ecological network in the agricultural landscape and serve as corridors through which different animal species move

maintaining the dry stonewall prevents the growing of undesirable vegetation on the dry stonewall and the dry stonewall body is revamped using traditional materials and method of workmanship

through this action, various plant and animal species are protected, it is a contribution to the preservation of biodiversity and the preservation of traditional landscape

2.4. hedge maintenance

explanation

the hedges contribute to the conservation and enhancement of biodiversity in monotonous agricultural landscapes where the fields prevail with only a few species

at the same time they contribute to landscape diversity, are an excellent wind protection, reduce soil erosion and to a certain extent prevent watercourse pollution with fertilisers and pesticides

throughout the year they are a rich source of food for wild species, especially insects, birds and small mammals

during blooming, hedges provide nectar and pollen for insects, thereby contributing to better crop pollination

they provide a nesting spot for a large number of bird species, while the best protection to birds is provided by thorny shrubs such as hawthorn

the foot of the hedge provides good shelter for small mammals, mice, hedgehogs, and some hedges even for badgers and foxes

the best hedges consist of several shrubs and trees and a ground layer overgrown with a rich weed flora
the most suitable species for hedge are autochthonous or domesticated deciduous shrubs and trees (hawthorn, European cornel, pomegranate, elder)

maintenance of hedges contributes to the protection of wild species, preservation of biodiversity and the traditional mosaic structure of landscapes in flatland and hilly areas

2.5. use of pheromone, visual and food traps

explanation

using pheromone, visual and food traps in pest monitoring significantly reduces the number of insecticide treatments and increases the effectiveness of insecticides

the appearance of pests is related to the climatic conditions of a particular site and is often consistent with the phenophases (development stages) of the host plants

it is impossible to reduce the number of insecticide treatments for the purpose of decreasing environmental pollution without monitoring the number of pests and estimating the population growth

the most significant advantage of using pheromone, visual and food traps is to reduce environmental pollution by insecticides, which directly affects the increase in biodiversity of permanent crops

monitoring the pests using pheromone and visual traps and controlling the pests during the optimal period decreases the number of insecticide treatments by up to 30 %, thereby reducing the "pressure" of chemical residues on soil and groundwater

2.6. method of pest confusion in permanent crops

explanation

frequent use of insecticides is a common practice in intensive production in permanent crops

by using the insecticide for a longer period, the insecticide becomes ineffective, i.e. resistance appears

in order to resolve this problem, as well as the problem of pollution, the pest confusion method offers a different approach to pest control through the use of pheromones

pheromones are synthetic chemicals which produce the same effect as natural pheromones released by pest females during mating season

they are used for the purpose of disturbing the reproductive cycle of the pests or even preventing complete mating resulting in the reduction of the next pest population

they are species-specific, selective, and are not harmful to other organisms and are non-toxic

the use of pheromones in permanent crops results in disorientation and confusion of the targeted population of pests

the objective of the pest confusion method is to mitigate the adverse effects of agriculture on the environment, increase biodiversity, reduce the use of chemical products, and protect the population of beneficial natural predators

as a consequence of the application of the pest confusion method, minor damage to permanent crops occurs, for example the apple is mandatorily treated with insecticides eight times against codling moth (*Cydia pomonella* L.), and using pheromones would reduce the number of treating codling moth in apple production by up to 50%

2.7. improved maintenance of inter-row space in permanent crops

explanation

intensive agricultural production adversely affects the content of organic matter in the soil

sowing certain grass mixtures that can withstand the pressure of agricultural machinery should enable maintenance of favourable soil structure and retention of the inter-row space in permanent crops covered by vegetation

the maintenance of the vegetation-covered inter-row space positively affects the reduction of greenhouse gas emissions and encourages the preservation and sequestration of carbon

the grassy cover contributes to the increase of organic matter in the soil, prevents erosion and reduces the rinsing of nutrients from the soil

2.8. application of organic fertilisers in permanent crops

explanation

organic formulations in agricultural production are preparations that do not have an adverse effect on humans, the environment and beneficial organisms

the objective of using organic fertilisers is to keep the content and amount of nutrients in soil and plant at optimum values, thus encouraging better vegetative and generative development of plants and fruit quality

use of organic fertilisers in fertilisation of permanent crops reduces the adverse effects of agriculture on the environment, increases biodiversity and contributes to the production of a quality and sound product

2.9. mechanical destruction of weeds in permanent crops

explanation

in intensive agricultural production, eliminating the weeds within rows in permanent crops is usually performed with herbicides

mechanical destruction of weeds with the use of special equipment for reduction or elimination of weeds between the rows significantly contributes to environmental protection and is useful for soil, plants and biodiversity

along with the mechanical removal of weeds, soil ventilation prevents the occurrence of crust and erosion due to abundant precipitation and increases the porosity of the soil

mechanical destruction of weeds between the rows of permanent crops enables a much more intensive exchange of gases, increases surface absorption and flow of water in the vertical direction (descending)

the heat capacity of the soil is reduced, allowing for faster soil heating, the active temperatures (5-10°C) required for initiation of vegetation and certain phenophases are achieved sooner

the soil surface retains the function of the protective layer and reduces capillarity
loss of water from deeper layers of soil due to evaporation of the surface and transpiration through the grass blade is prevented

3. ORGANIC PRODUCTION

3.1. transition to organic agricultural practices and methods

explanation

the Republic of Croatia has an interest in increasing the area under organic production and this action aims to encourage farmers to abandon conventional agricultural production that adversely affects the environment and biodiversity and continue their production on the basis of organic practices and methods

3.2. maintenance of organic agricultural practices and methods

explanation

growing consumer interest, awareness on the importance of preserving the environment and the impact of healthy, organically produced food on health are the indicators that the trend of increasing the number of organic farmers should continue

this action is performed so that the farmers who are already involved in the organic production system continue with the same production method which uses practices and methods more demanding than in conventional farming

ACTIONS BENEFICIAL FOR THE ENVIRONMENT, WHICH CONTRIBUTE TO SOIL PROTECTION, WATER OR ENERGY SAVING, IMPROVEMENT OR MAINTENANCE OF WATER QUALITY, HABITATS OR BIODIVERSITY PROTECTION, CLIMATE CHANGE MITIGATION AND REDUCTION OR IMPROVED MANAGEMENT OF WASTE

eligible costs

the amount per hectare covers additional production costs, i.e. the difference between the costs of conventional production and the real costs incurred due to implementation of the action

1. INTEGRATED PRODUCTION

1.1. integrated production

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with the general principles of integrated plant protection set out in the National Action Plan for Sustainable Use of Pesticides for the period 2013-2023.

explanation
the objective of the integrated production is as follows:

- preservation of the environment and natural habitats
- reducing soil, water and air pollution
- preservation and facilitation of soil fertility
- preservation and promotion of biodiversity and the natural mechanisms of predator and parasite control
- optimal use of plant protection products and mineral fertilisers
- economic sustainability of production systems

2. SOIL PROTECTION

2.1. protecting soil from erosion

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19*) and Ordinance on Cross Compliance (*Official Gazette of the Republic of Croatia, No. 32/15 and 45/16*)

explanation

in agricultural areas with a slope of 15% or more, the change of crops shall be regularly performed

inter-row space in permanent crops with a slope of 15% or more shall be vegetation-covered and direction of rows shall be set up vertically with regard to the terrain slope

in agricultural areas with a slope of 25% or more the sawing of spring row crops with rare sowing density is prohibited

in areas where the textured lighter soil is dominated, besides conservation treatment, windbreak shall be raised in order to mitigate the occurrence and consequences of wind erosion

2.2. minimum level of cultivation and maintenance of agricultural land

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19*) and Ordinance on Cross Compliance (*Official Gazette of the Republic of Croatia, No. 32/15 and 45/16*)

explanation
agricultural areas are cultivated and maintained in accordance with plant species and cultivation methods

2.3. Preventing of weediness and overgrowing with perennial vegetation

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19*)

explanation
for the purpose of preventing of agricultural land from the weediness and overgrowing by perennial vegetation, the appropriate agrotechnical soil cultivation and plant care measures in fruit and vegetable plantations are applied

in the prevention from the weediness and overgrowing by perennial vegetation and plant care, preference is given to non-chemical measures of plant protection such as mechanical, physical, biotechnical and biological protection measures, and when using chemical protection measures, preference is given to herbicides with more favourable ecotoxicological properties

2.4. combating harmful organisms

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19)*

explanation
in combating of harmful organisms, the basic principles of integrated plant protection shall be applied in accordance with the regulations governing the sustainable use of pesticides

2.5. management of plant residues

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19*)

explanation
in a three-year crop rotation it is allowed to remove plant residues from agricultural areas in one vegetative year except in the case of their further use in agriculture in terms of food or livestock bedding and in case of potential danger of spreading harmful organisms

it is necessary to remove all plant residues from agricultural land which could be the cause of the spread of harmful organisms within a certain time in accordance with plant species

2.6. maintaining the level of organic matter and humus in the soil

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19*)

explanation
the organic matter in the soil is maintained by carrying out a minimum three-year crop rotation or growing of crops for green fertilisation or by adding soil improvers

the order of plants in crop rotation must be such as to maintain and improve soil fertility, favourable soil structure, optimal nutrient level in the soil

grass, clover, clover-grass mixtures are an integral part of crops and may remain on the same surface for more than three years

when planning the maintenance of the level of organic matter in the soil, it is necessary to enter the residues in the soil using conventional, reduced or conservative soil cultivation and to balance the soil with organic fertilizer or cultivation of crops for green fertilisation

2.7. maintenance of soil structure

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19*)

explanation
the use of machinery must be appropriate to the condition of agricultural land and its properties

in conditions where the soil is saturated with water, flooded or covered with snow, the use of agricultural machinery on agricultural land is forbidden, except when harvesting/picking of crops

2.8. maintenance of soil fertility

eligible costs - additional costs, which are calculated as difference between the costs of conventional costs and the real costs incurred and income foregone resulting from an action, excluding additional income and costs savings

commitments shall be implemented through the duration of the operational programme in accordance with Ordinance on Agrotehnical Measures (*Official Gazette of the Republic of Croatia, No. 21/19*)

explanation

soil fertility must be maintained by applying agrotechnical measures to increase or maintain favourable macro and micro-nutrient content in the soil, as well as optimal physical and microbiological properties of soil

3. WATER SAVING

3.1. replacement or upgrading of irrigation equipment

eligible costs - purchasing new and upgrading the existing irrigation equipment

commitments are reduced energy consumption for heating and cooling, thus reducing the amount of CO2 emissions

explanation
the aim of this activity is upgrading the irrigation system in order to reduce water consumption by at least 15% in the period of fiscal investment depreciation with regard to the initial state or 7%, provided that these investments provide at least one additional benefit for the environment (reduction of CO_2 emissions)

3.2. reuse of water

eligible costs are purchase and installation of equipment for water collection and reuse and experts' costs related to the monitoring of nutrient levels in reused water for irrigation, including the level of nutrients in fruit and vegetables

commitments are to collect, process and reuse excess irrigation water from the system for the production of greenhouse and greenhouse plants and to reduce fertilizer application through their more efficient use

explanation
the aim of this activity is upgrading the irrigation system in order to reduce water consumption by at least 15% in the period of fiscal investment depreciation with regard to the initial state or 7% provided that these investments provide at least one additional environmental benefit (reduction of fertilizer use)

3.3. targeted irrigation

eligible costs are purchase and installation of equipment for measuring and monitoring irrigation needs and costs of nutrient needs analysis

commitments are measure, monitor and irrigate in accordance with water and nutritional needs

explanation
the aim of this activity is to monitor the water and nutritional needs of water plants to reduce water consumption by at least 15% in the period of fiscal depreciation of the investment relative to the initial state or 7% provided these investments provide at least one additional environmental benefit (reduction of fertilizers use)

3.4. wastewater treatment

eligible costs are the purchase and installation of wastewater treatment equipment

commitments are to purify wastewater and to prevent water pollution

explanation
the aim of this activity is to cleanse wastewater to prevent drinking water contamination

3.5. purchase and installation of equipment to increase energy efficiency

eligible costs are the purchase and installation of equipment that reduces energy consumption

commitments are to reduce the use of fossil fuels, to use renewable energy sources in fruit and vegetable production and to use energy more efficiently

explanation
according to Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance) Croatia must achieve 20% of its total energy consumption from renewable sources by 2020 and improve energy efficiency by 20%

4. IMPROVEMENT OR IMPROVEMENT OF WATER QUALITY

4.1. protection against pollution

eligible costs are:

- buying or renting equipment for precise application of fertilizers and plant protection products in fruit and vegetable crops
- soil and water analysis with the aim of reducing water pollution
- procurement of plant protection products and fertilizers that are applied in ecological production or have a lower negative impact on water

obligations are soil and water analysis every year, fertilization in accordance with the availability of ground nutrition and plant requirements and records on the use of plant protection products and fertilizers

explanation
using fertilizers in accordance with the availability of soil nutrients and plant requirements on agricultural areas and/or facilities located outside vulnerable areas defined by the Decision on Determination of Vulnerable Areas in the Republic of Croatia (Official Gazette 130/12) and application of fertilizers and the protection of plants applied in ecological production reduces water pollution

5. PROTECTION OF STATE AND BIOLOGICAL DISTANCE

5.1. biological control of pollination

eligible costs are the cost of purchasing and using insects useful for pollination and other biological control methods

commitments are regularly placed hives and insects useful to pollinate the production areas and maintain the windscreen belt

explanation
biological control of pollination, particularly in areas where an intensive type of agricultural production predominates, is an acceptable solution to mitigate the negative consequences of biodiversity

5.2. biological control of harmful organisms

eligible costs are the costs of using the biological control method of harmful organisms and the costs of the advice of qualified personnel

commitments are to use pheromones, predators, parasites and other possibilities of biological control of harmful organisms in indoors and outdoors

explanation
biological control of harmful organisms reduces their population, use of pesticides, resistance to harmful organisms to pesticides and the appearance of secondary pests as a result of the use of nonselective pesticides

5.3. mechanical and physical methods of controlling harmful organisms

eligible costs are the costs of using mechanical and physical methods for controlling diseases and pests

commitments are using mechanical and physical methods of controlling harmful organisms

explanation
by applying mechanical and physical methods of plant protection it is prevented or reduced to a minimum level of harmful organisms and contributes to the preservation of natural enemies and other beneficial organisms

6. ESTABLISHING CLIMATE CHANGE CONSEQUENCES

6.1. emission reduction

eligible costs are the costs of purchasing and installing equipment that uses less energy or cleaner fuel

commitments are replacing an existing heating system for a more efficient system or to use cleaner fuels (eg from oil to gas)

explanation
replacing existing and installing more efficient technologies that use less energy or cleaner fuel reduces greenhouse gas emissions and increases energy efficiency

6.2. use of cogeneration or trigeneration plants

eligible costs are the costs of purchasing and installing equipment (cogeneration or trigeneration plants)

commitments are the use of heat and/or electricity from renewable energy sources

explanation
using cogeneration or trigeneration plants reduces energy consumption from non-renewable sources

7. REDUCING QUANTITY OF WASTE AND IMPROVEMENT OF WASTE MANAGEMENT

7.1. reducing the amount of packaging waste

eligible costs are the costs of purchasing packaging for reusable use and additional waste management costs per production cycle

commitment is the multiple uses of packaging

explanation
packaging for reusable use allows reuse of packaging, which reduces the amount of packaging waste and the cost of transporting, cleaning and storing packaging

7.2. the use of environmentally friendly packaging materials

eligible costs are the additional cost of purchasing packages of environmentally acceptable or recycled materials

commitments are using environmentally-friendly or recycled materials

explanation
using packs of environmentally friendly or recycled materials contributes to reducing the amount of waste and improving waste management

7.3. reducing the amount of waste during production

eligible costs are the cost of collecting and recycling plastic film and the costs of procuring and installing biodegradable foil

commitments are collecting and recycling the plastic foil and using the biodegradable foil

explanation
collecting and recycling plastic foil and using biodegradable foil in production contributes to reducing the amount of plastic waste during production