Fine-tuning in areas facing significant natural and specific constraints

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Disclaimer

This guidance does not represent a binding legal interpretation of Regulation (EU) 1305/2013.

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1. BACKGROUND

Article 32(3) of the Rural Development Regulation for the period 2014-2020 stipulates the following: *When delimiting the areas concerned by this paragraph, Member States shall carry out a fine-tuning exercise, based on objective criteria, with the purpose of excluding areas in which significant natural constraints, referred to in the first subparagraph have been documented but have been overcome by investments or by, economic activity, or by evidence of normal land productivity, or in which production methods or farming systems have offset the income loss or added costs referred to in Article 31(1).*This wording clearly indicates that fine-tuning is a compulsory part of the delimitation.

The above requirement also applies to areas facing specific constraints which are delimited by combination of criteria as referred in Article 32(4). In both delimitation cases fine-tuning is compulsory.

This document aims to provide guidance to Member States on how to carry out fine-tuning – how to choose indicators, how to apply them, what thresholds to use, where to retrieve data, etc. This document also outlines the margins of flexibility in fine-tuning.

In 2010 Member States carried out simulations of the biophysical criteria. The simulations provided evidence for three arguments:

1/ In small number of Member States some areas were delimited without any evidence of economic losses compared to non-constrained areas. A typical example is wine production in areas suffering from very stony soil.

2/ A number of Member States excluded those areas where investments have overcome the constraints, however, fine-tuning stopped there and no other (economic) indicators were used. To take wine as an example again, some regions with very profitable wine production have not been considered for fine-tuning.

3/ The simulations have revealed that a fine-tuning indicator, which is not directly linked to the constraint, performs poorly.

2. METHODOLOGY

Member States shall carry out the delimitation in line with Article 32 of the Rural Development Regulation, including fine-tuning. Member States shall explain the method used in the measure description of the Rural Development Programme.

This process is drawn up in two steps:

Biophysical criteria

The methodology for the application of the biophysical criteria has to be used uniformly in order to respect the premise that the delimitation is based on a common framework. This methodology is available at: http://agrienv.jrc.ec.europa.eu/publications/Updated-ANC-biophysical.pdf and the Joint Research Centre, European Commission (JRC) will support Member States in application of the biophysical criteria.

Fine-tuning

This document emphasizes that correct and adequate fine-tuning is a process which may necessitate multiple attempts and a case must be built to provide evidence that the fine-tuning method used by the respective Member State has been adequate, correct and complete (including economic indicators). The methodology used for the fine-tuning exercise should be provided in the framework of the Rural Development Programme, as well as the results[1] of the process.

The fine-tuning process should make use of the relevant indicators and the thresholds proposed in this document. **Member States are at liberty to choose a different method and a different threshold, however, such approach also needs to be supported by evidence**. All indicators which are relevant as regards overcoming a handicap and linked to production have to be analysed and applied if they are proven to be relevant.

In case the Member State chooses not to apply a new delimitation from the moment of approval of the new Rural Development Programme, the Programme has to be modified according to the new delimitation at a later stage. In order to continue to pay the full amount of ANCs payments in the designated areas, MS should be ready to pay in newly designated areas during the year 2018. This means that the adoption of the RDP at national or regional level should take place sufficiently in advance before the deadline for submission of payment applications in 2018. Otherwise, MS need to proceed with degressive payments, as foreseen in Article 31(5)

Data to be used for the fine-tuning process

Data to be used for fine-tuning should be appropriate in order to respond to the question whether the constraint in a given area is still affecting the agricultural production. Such data may come from the EU statistical systems, either from FADN or Eurostat (as further set out under different chapters of this document) or from different national statistical resources.

[1] The size (in total) of the excluded area and the number of LAU2 or equivalent local units should be provided.

This document provides some guidance on what data are available at EU level and where they can be retrieved at national level. However, as in the case of the biophysical criteria themselves, nationally collected data remain the prime source of information.

The absence of data, however, cannot lead to a situation where no fine-tuning or limited fine-tuning is carried out. In order to draw a credible delimitation, all three principles described in section 1 must be followed. Member States can use Technical Assistance not only to apply biophysical criteria and fine- tuning but also to collect additional data. Such collection, where appropriate, may target only selected regions, for example to break down data at NUTS2 level to finer data at NUTS3 level or lower.

If no appropriate data are available, Member States may also carry out standard calculations in order to identify output and costs of agricultural production in the region to be fine-tuned and compare them to normal situation. These standard calculations are based on assumptions reflecting the production conditions in a given area. The correctness and accuracy of such assumptions and calculations have to be confirmed and ensured by a body that is functionally independent from the authorities responsible for the programme implementation, as laid down in Article 62 of the Regulation 1305/2015.These standard calculations may concern Standard Output (SO) and Standard Gross Margins (SGM) in certain regions.

Annex II provides a simple example on how to carry out delimitation with fine-tuning.

Up-dates: In principle, new data should be fed into fine-tuning at least once every seven years, so that each programming period sees a credible map of areas facing significant natural constraints.

Administrative unit: For fine-tuning, areas larger than LAU2 can be considered. This is useful for more homogenous areas, e.g. larger areas of grassland (where livestock density can be considered), or even for areas with presence of a mix of crop production where standard outputs or average yields indicators could work well. However, while areas larger than an administrative unit can be excluded in bloc, the final delimitation still has to be based on administrative units (LAU 2 or other clearly delineated local unit).

3. FINE-TUNING CRITERIA

As said above, it is important to address each biophysical indicator with the appropriate fine-tuning indicator. It has also been said that fine-tuning cannot be done partially on the delimited area. The table in Annex I to this document provides examples of fine-tuning indicators which could be explored for each biophysical indicator.

3.1 Overcoming natural constraints by investments

The simulations supplied by Member States, as well as the scientific work which had preceded them, point out that some of the natural constraints can be overcome by investments which aim to offset the impact of the constraint. The three types of investments encountered in the Member States' simulations concern presence of irrigation, presence of artificial drainage and presence of greenhouses. It can be safely argued that e.g. dry land which has been irrigated no longer suffers from dryness and on those grounds, such land has no place in the delimitation. The contrary case would aim against the purpose of the support measure for areas facing constraints which encourage continuous use of agricultural land.

The fine-tuning mechanism does not take into account the investment in constructing the system to overcome the handicap (e.g. irrigation, drainage). This is because the payment foreseen in Article 31 of the Rural Development Regulation aims to compensate for all or part of the documented present natural constraint while there are other rural development measures which aim to support investments. While it is appreciated that operating and maintaining irrigation systems, drainage systems and greenhouses bear additional costs, it also needs to be borne in mind that the purpose of these investments (including the consequent maintenance costs) is to secure a profitable business.

There are two ways of fine-tuning areas where natural constraints are overcome by investments. The first one includes the fine-tuning step in the initial delimitation and the second approach applies fine-tuning in a second iterative step. Both approaches have been used by Member States in the simulation exercise.

<u>Fine-tuning at the moment of delimitation following the biophysical criteria</u>

In case of a good spatial record of irrigation/drainage/greenhouses, Member States may carry out the fine-tuning already at the level of the delimitation following the biophysical criteria by simply discarding the land on which one these investments are present (this approach would not function for economic indicators – see section 3.2). This means that, to give an example of irrigation again, Member States will produce a map of the dryness criterion (a simple map without using boundaries of an administrative unit and the 60% threshold, as required later on). This map will be consequently overlaid by the map of irrigation and all areas which are under irrigation should be discarded. These two steps will produce the final map of the dryness criterion which has already been fine-tuned. This final map will then feed into the aggregation process where the maps of the other criteria are put together with the consequent application of the administrative unit and the 60% threshold. Such approach will provide for very realistic and fair fine-tuning.

Fine-tuning in a separate step after initial delimitation

The key factor to realistic fine-tuning in the context of investments is the threshold of agricultural areas covered by such investment. Excluding an administrative unit where all agricultural area is irrigated is an easy task, however, excluding the unit where only a part of the agricultural area is irrigated proves to be challenging. This has been documented by simulations by some Member States which excluded every LAU2 where at least 50% of the agricultural area was irrigated.

It is true that in these excluded areas, some farms might not have carried out these investments (drainage, irrigation, etc.) but continue with traditional production. However, this is no reason to keep the entire area covered by ANC assistance, nor can the assistance be given to individual farms. In these cases, the Member State may try to identify other suitable support options for those farms under the Rural Development Programme (for example, support for the maintenance of extensive farming systems under agri-environment-climate-measure, etc.).

3.1.1. Irrigation

Rationale

The JRC factsheet on dryness stipulates that "severe conditions would correspond to AI UNEP values equal or less than 0.5, which hamper crop and pasture growth and reduce production opportunities. Only with supplementary water supply, such as irrigation, normal crop and pasture growth can be secured in such areas." The aridity constraint therefore can be overcome with irrigation and therefore, it can be argued that irrigated land is at a very low risk of being abandoned.

Data

Eurostat's Farm Structure Survey (FSS) provides data on the number of farms with irrigation, areas irrigable and irrigated for different crops by size of irrigated area and region. Every 10 years, the FSS is carried out as a census, covering all agricultural holdings above certain thresholds, while 2-3 sample surveys are carried out in between survey years. Census data are representative at any geographical level, while data from sample survey years are only representative at the level of NUTS2. In 2010 (the most recent year for which data are available), irrigation characteristics were moved from the FSS to the survey on agricultural production methods (SAPM), which could be carried out as a sample survey. The latest data on irrigation are thus representative at NUTS2 level. In addition to the irrigated area and crops, the SAPM also includes information on the irrigation methods used and the source of irrigation water.

Apart from this statistical information, Member States may have information at lower regional level.

3.1.2. Artificial drainage

Rationale

Insufficient soil drainage is a major constraint to agriculture, generally requiring expensive technical adaptations (artificial drainage, ditching, pumping, flood control). Such areas are often best left to seasonal pasture or specialty crops. Given the severe

constraint, poorly-drained soils have a shorter window for tillage practices, growth and harvesting, without artificial drainage.

In many areas of Europe with natural drainage problems, soils have been artificially drained, often for centuries. If these drainage works are considered now part of the landscape, the drained soil units should be evaluated as if they were better drained than without the installed drainage systems. That should be considered as a trigger for considering the area for exclusion.

Some Member States have a problem determining to what extent the drainage systems are operational and functional, as they may be registered in the maps but due to poor maintenance over a period of time, these systems are malfunctioning or not functioning at all. A reality check is as important as ever, no guidance at Community level can be issued on this. Note, however, that several Member States took into account only those drainage systems which are less than 30 – 35 years old, as older systems were neglected for a period of time.

Data

There is no source of data at Community level which would record artificial drainage. However, the simulations show that Member States have a good record at national level and therefore such data should be used.

3.1.3. Greenhouses

Rationale

During the simulations, a small number of Member States reported presence of greenhouses in the areas documented as constrained. In principle, greenhouses can help to overcome the climate criteria by positively impacting photosynthesis through milder sheltered conditions in case of low temperature, and in case of dry areas, also by providing and regulating moisture.

Data

The simulations show that Member States have a good record at national level and therefore such data should be used. The area under glass is also available in the FSS.

3.2. Overcoming natural constraints by economic activity

Various natural constraints describing poor soil productivity can be overcome by means of different techniques or practices such as fertilisation or choices of farming systems. `Vineyards where poor soil = low yield = high quality` is an example of overcoming documented natural constraint by economic activity. Or, in stony areas the production of certain livestock (poultry, pigs) may be considered overcoming the natural constraint in the area. For such situations, it is necessary to look at the production results in the area in order to see whether the natural constraint is still exerting a negative effect on the agricultural activity.

The exclusion of areas which have overcome the constraints measured by economic indicators may become quite challenging as data availability varies across and within Member States. In most cases, it should be possible to carry out fine-tuning with the use

of Standard Outputs (or formerly Standards Gross Margins). This indicator will also reflect investments referred to in the previous section, and it will take into account the other economic indicators, such as average yield, average stocking density, and tree density.

Member States may choose to use another criterion taking into account costs of production, such as the Gross Value Added (GVA[2]) but without the subsidies. In these cases the operating costs could be deducted from the market receipts. Member States have a liberty to choose the fine-tuning criteria, using the available statistical information, to achieve the most accurate result. However, the criteria must be relevant, transparent and based on statistical evidence.

In some cases, it would be appropriate to exclude areas where the predominant farming activity has overcome the natural constraints, for example, dairy farming. In case it can be proven by calculations (Standard Output/Gross Value Added or another appropriate economic criterion) that in a given area (predominantly occupied by dairy farms) the economic activity (dairy farming) has overcome the recorded natural constraint, the area could be subject to fine-tuning. In this case, the entire area should be excluded from the payment, not only single dairy farms.

3.2.1. Standard Output

Rationale

The Standard Output (SO) of an agricultural product (crop or livestock), is the average monetary value of the agricultural output at farm-gate price, in euro per hectare or per head of livestock. There is a regional SO coefficient for each product, as an average value over a reference period (5 years). The sum of all SO per hectare of crop and per head of livestock in a farm is a measure of its overall economic size, expressed in euro.

The average yield in a region is reflected in the SO calculation. Due to its multi-annual character, this indicator is closer to the average physical productivity of an area than the actual annual receipts and is not influenced by short-term fluctuations in market prices. It is a criterion adapted for arable areas, permanent crops, livestock and grassland. SO coefficients for wine of different qualities are available, as well.

However, the use of SO would work only if the differentiation of standard output is reported at highly disaggregated levels (e.g. communes).

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[2] Gross Value Added is the value of output minus the value of the goods and services consumed as inputs by the production process (excluding fixed assets). FADN is an important source of data and is readily available. Enhanced possibilities for the Member States to make use of the FADN information would maximize its benefits and reduce data collection costs and efforts. However there is no FADN indicator measuring GVA. Therefore the following calculation using FADN indicator could be used as a proxy: GVA = SE 131 (Total Output) – SE 275 (Total Intermediate Consumption). Doing so, the GVA (at market price) is underestimated as coupled payments are not added (given the difficulties in separating the subsidies on products from the others).

SO coefficients are reported by Member States to the Commission at SO region level. Following point 2(b) of Annex VI or Commission Implementing Regulation 2015/220, the geographical breakdown of SO regions is defined as follows: 'The SOs are determined at least on the basis of geographical units which are usable for the FSS and for the FADN. These geographical units are all based on the general Nomenclature of Territorial Units for Statistics (NUTS) as defined in Regulation (EC) No 1059/2003 of the European Parliament and of the Council (1). These units are described as a regrouping of NUTS 3 regions. Areas facing natural constraints or mountain areas are not considered as a geographical unit'.

Therefore, NUTS 3 region is the most disaggregated level available, but only for some Member States, as in most cases they only provide less disaggregated values at higher NUTS level or even at country level (ideally, the more or less detailed disaggregation should reflect existing difference/uniformity in yields and prices at local level).

SO reflects real differences in productivity (in particular yield levels). SO represents the potential value of sales from each farming activity (e.g., the standard value of the output which can be obtained from breeding one head of a given type of livestock or cultivating one hectare of a given type of crop). Therefore, it is a reflection of combined effect of differences in yields and prices between different SO regions.

Data

Before 2010 the Farm structure survey (FSS) and the Farm accountancy data network (FADN) used Standard Gross Margin (SGM) to classify agricultural holdings by type of farming and by economic size (Commission Decision 85/377/EEC). From 2010 and onward this classification has changed and uses SO instead (Commission Implementing Regulation 2015/220). The principle of both concepts is the same; only the way they are calculated differs.

The main differences between SO and SGM are:

- SO excludes direct payments;
- SO does not take into account specific costs.

SO coefficients used for typology are available in Eurostat database. The SO coefficients 2007 were calculated using the average of 2005, 2006, 2007, 2008 and 2009 yields and prices. They have been applied to the FSS 2010 results.

SO coefficients are estimated for all crop and livestock activities for all regions which are compatible with those used for the FSS and for FADN. By aggregating the standard outputs/ha at farm level across a geographical area, one can calculate the "regional" standard output per hectare, which can be compared across regions. In that light, it is

possible to exclude those areas/regions which demonstrate a higher SO per hectare than the reference[3].

Threshold

For simplicity and comparability, Member States could use the average SO per hectare at Community level and a certain percentage of that level. For example, all areas with a SO per hectare of more than 80% of the EU average could be excluded. However, such simplistic approach could mean that in those Member States where the national average SO per hectare is quite low compared to the EU average SO, some rather productive areas (in the national context) would still be part of the delimitation. A national average SO per hectare should therefore be applied consequently (however with excluding SO of mountain areas to reduce distortions of the reference value), with a threshold for example 80%, i.e. excluding all areas where SO per hectare is higher than 80% of the national average. A regional SO per hectare could be used instead in cases of regionalized and/or large Member States.

Admittedly, the value of the threshold is based on judgment. However, any figure above 80% is coming close to the EU/national average. Moreover, it should be noted that in the current delimitation, many Member States use a cut off line of > 80% of the national average for indicators like the farm income.

In case the Member State chooses to use another criterion, e.g. Gross Value Added, the above-mentioned logic concerning the threshold should be applied *mutatis mutandis*.

3.2.2. Average yield of a dominant crop

Rationale

The average yield (yield = the harvested production per ha for the area under cultivation) is to a certain point reflected in the SO calculation. Therefore, this fine-tuning method could be used where comprehensive data on SO are missing. The values of this indicator are close to the physical productivity of an area and are not influenced by market trends. It is a criterion adapted for arable areas but could also be used for permanent crops. However, it is not adapted for areas specialized in high profitable crops produced in limited quantities (e.g. wine).

Data

Eurostat's Crop Products statistics collect data on yields and refer to the following types of annual data:

- The area, the production harvested and the yield for cereals and for other main filed crops (mainly dried pulses, root crops, fodder and industrial crops).

[3] Due to the exclusion of specific costs in the calculation of SO, a high SO value is not necessarily related to a high profit for farmers. It may thus be necessary to take production costs into account in the fine-tuning exercise.

- The area, the production harvested and the yield for a large number of fruits and vegetables.

- Land Use statistics for Utilized Agricultural Area (UAA).

- Balance sheets data

The crop statistics provide, for a given product, the area, the yield and the production harvested during the crop year at national (and, to a more limited extent, at regional) level. The information concerns about 200 crop products.

National Statistical Institutes or Ministries of Agriculture are responsible for data collection, in accordance with EC Regulations, and they typically have more detailed data. The data are annual and refer to different areas - most of the data refer to a whole country (which is naturally not usable for fine-tuning), but for some crops, data is transmitted at regional level, using NUTS 2, NUTS 3 or other geographical breakdowns.

Threshold

As it is the case with SO/GVA, this guidance document recommends using 80% as the value of the threshold (for details, please see the section on SO and GVA).

3.2.3. Livestock density

Rationale

Statistics[4] show that grassland used for agricultural purposes is mainly concentrated in regions with less fertile soils and where forests have been either cut during the past centuries to fuel economic growth or disappeared due to climate factors. Some Member States argue that the thresholds selected for the biophysical criteria (defining a severe impact on agriculture) result in a situation where no or very limited production on arable land is possible and therefore these areas have been converted into grassland. In the context of being affected by natural constraints, the livestock density in a delimited area expresses the possibility of production: relatively high stocking density = no disadvantage. Therefore, application of the average livestock density indicator is an appropriate fine-tuning mechanism.

In 2007, the average LSU per ha of UAA was 0.78. Total livestock density aggregates all categories of animal, including indoor animals such as pigs and poultry and all types of agricultural land; it is a broad indicator of the pressure exerted by farming as a whole. However, limiting the scope to only grazing animals and fodder area gives a different picture, more specifically of grassland management. The grazing livestock density (grazing LD) was 1.07 LSU per hectare of fodder area in 2007 in the EU.

However, there are big differences across Member States, with the total LD ranging from 0.27 LSU/ha in Latvia to 4.80 LSU/ha in Malta and the grazing LD from 0.31 and 3.56 respectively in the same countries.

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[4] http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-FK-11-001/EN/KS-FK-11-001-EN.PDF

Without attempting to define the nature of the grassland use, i.e. at what point the extensive use falls into an intensive one, it is clear from these statistics that some area with high LD should be removed from the delimitation, as they are not at risk of being abandoned.

Data

Annual data on livestock numbers (different species) are available from Eurostat's livestock survey at NUTS2 level. They could be linked to area parameters at NUTS2 level (total agricultural area; total grazing area) but averages would include farms which have no livestock at all and could thus be misleading. Therefore, in order to break down information at NUTS2 level, this database can only be used for areas which are typical grazing areas. In this context it is therefore clear that this criterion should cover mainly areas with a high share of grassland.

It has been proposed by some Member States to use the share of grassland as a stand-alone criterion, however, such approach suffers from two shortcomings:

1/ by removing all areas with share of grassland less than 20% or 30%, as proposed by some Member States, the fine-tuning automatically excludes all remaining arable land which may also suffer from severe constraints (depending on the topography of the area).

2/ this criterion does not reflect livestock density which has been documented very high in some Member States.

Eurostat's FSS collects livestock data at farm level every 3-4 years (census every 10 years). Livestock densities can thus be calculated at the level of individual farms and aggregated across farms with livestock (rather than calculating averages across all farms).

Threshold

In order to exclude areas with high stocking densities and thus profitable agriculture, Member States have proposed several thresholds. As in the case of SO, both national and EU reference should be taken into account, although it is logical to rely rather on national reference. A certain ceiling, respecting the EU reference, should also be taken into account in those Member States where the average livestock density is high. For example, excluding all areas with livestock density higher than 1.4 LU/ha seems as the minimum threshold (successfully used by Member States in the simulations), on the other hand, 2 LU/ha as proposed by some other Member States is close to a double of the EU average. An OECD study "Quantifying effects of changed farm practices on biodiversity in policy impact assessment – an application of CAPRI-Spat"[5] argues that grazing livestock density favourable for extensive management is at 0.5 LU/ha for Mediterranean zone, and 0.9 LU/ha for Atlantic zones.

[5] http://www.oecd.org/dataoecd/51/58/44802327.pdf

3.2.4. Permanent crops - tree density

Rationale

As in the case of increased livestock density, all areas with increased tree density should be excluded. That is a secure way of eliminating intensive farming systems, including orchards and olive tree groves.

Data

Currently, Eurostat has no data on tree densities at any geographical level, Member States therefore have to use their national data. The "permanent crops" Regulation (EU) No 1337/2011[6] requires Member States to report planting density classes and age classes for different types of fruit (including olive) trees from 2012 onwards (every 5 years; first submission to the Commission by 30 September 2013).

Some Member States have maintained the olive register, and possibly some other registers. These databases should be utilized in order to determine the tree density.

Threshold

In the case of this indicator, it is logical to make use of the national average. As in the other indicators, 80% of the national average could be used.

3.2.5. Normal land productivity

Rationale

Certain Member States have developed more complex agricultural qualification systems reflecting the average yield of the most common crops. These indicators may be considered for providing information on land productivity. Such systems are based on physical indicators, explaining land production. These systems may be used in order to compare land productivity between constrained and non-constrained areas. However, in this case, these indicators must be regularly reviewed and up-dated, at least every 10 years.

These indicators may be used only for measuring productivity, not for measuring distance from the market or for measuring socio-economic criteria. The link must be done to actual production and situation.

Data

Land classification systems of Member States measuring the quality of the agricultural land (quality classes/grades/indexes).

Threshold

In areas where this indicator exceeds 80 % of the national average, the fine-tuning could take place.

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[6] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:347:0007:0020:EN:PDF

3.2.6. Farming systems and production methods

Rationale

Farming systems can refer to; for example “intensive” and “extensive” farming; or "crop" and "livestock".

As some farming systems have overcome the natural constraint by technological development or human intervention, it is also possible to apply farming systems for fine-tuning in order to exclude those areas where the predominant farming system does not suffer from the natural constraint following the human intervention.

In some cases, the "farming system" may allow to fine-tune such farming systems that actually benefit from a natural constraint recorded in certain area. For example, fur production benefits from cold climate. Therefore, it should be considered that the recorded natural constraint (cold climate) is not a constraint for fur production, and it could be concluded that in an area where fur production is the predominant farming system there is no justification for ANC support.

Production method characterises the way of producing (specific way of producing in agricultural holdings). Therefore, the production method refers within a chosen farming system, to different farm management practices and the use of farm inputs. If the Member State identifies production methods which have overcome the natural constraint, the Member State may exclude these areas where this specific production method is predominant.

While "farming system" refers to "what" the farms produce, the "production method" refers to "how" the agricultural products are produced.

Data

In addition to the above mentioned options to use to some extent the Community typology for agricultural holdings or other options as described, some Member States have adequate statistical information at national level and therefore such data could be used.

Threshold

This indicator is based on national average. If these farming systems or production methods make up at least 50 % of the agricultural area, the area should be excluded from the ANC assistance.

Annex I – Examples of correspondence between biophysical criteria and fine-tuning indicators

Criterion	**Fine-tuning approach**
Low temperature	Standard output Tree density Livestock density Greenhouses Average yield Normal land productivity Farming system Production method
Dryness	Standard output Tree density Greenhouses Irrigation Average yield Normal land productivity Farming system Production method
Excess soil moisture	Standard output Livestock density Artificial drainage Average yield Normal land productivity Farming system Production method
Limited soil drainage	Standard output Livestock density Average yield Artificial drainage Normal land productivity Farming system Production method
Unfavourable texture and stoniness	Standard output Tree density Livestock density Average yield Normal land productivity Farming system Production method
Shallow rooting depth	Standard output Tree density Livestock density Average yield Normal land productivity Farming system Production method
Poor chemical properties	Standard output Tree density Livestock density

	Average yield Normal land productivity Farming system Production method
Steep slope	Standard output Normal land productivity Farming system Production method
** Several criteria present*	*Standard output* *Tree density* *Livestock density* *Average yield* *Irrigation* *Artificial drainage* *Greenhouses* *Normal land productivity* *Farming system* *Production method*

Annex II

This Annex summarizes possible ways of carrying out a delimitation of areas with significant natural constraints successfully.

At first, all/selected **biophysical criteria** have to be applied in the Member State. This obligation stems out of Article 32(3) of the Regulation of the European Parliament and of the Council on support for rural development by the European Agricultural Fund for Rural Development (EAFRD). For that purpose, JRC, in consultation with the expert panel, prepared a common methodology[7].

The standard approach is that criteria are applied individually and an individual spatial record is established (i.e. occurrence of each criterion within the Member States is mapped separately).

Secondly, Member States may decide to exclude all areas where dryness/low temperature/drainage criteria have been **overcome by investments**. To give an example, the resulting map of dryness should be overlaid by spatial information on irrigation. All areas which have been identified as constrained by the dryness criterion and which are irrigated, should be removed from the map of dryness. The "purified" map will be used in the aggregation with the other criteria.

Thirdly, with or without having done this fine-tuning step, all maps of **criteria must be aggregated**, i.e. overlaid, one on another. This will produce a spatial map of all constraints in the respective Member State. Consequently, the map of all constraints needs to be overlaid by the map of boundaries of LAU2s (administrative unit). This will produce the final administrative map of natural constraints in the respective Member State. Only those administrative units where at least 60% of the agricultural area is covered by at least one constraint will qualify to this final map. As a consequence, all agricultural area in a qualifying administrative unit is considered as constrained, although no constraints may have been documented on some parts of that administrative unit. It has been explained earlier that an area covered by two (or more) constraints can be calculated only once towards the 60% threshold[8].

Finally, **fine-tuning** on the resulting administrative map must be done, as stipulated by Article 32(3), referred to above.

In cases where no fine-tuning has been done on land which is irrigated/drained/covered by greenhouses, Member States identify areas or administrative units where irrigation/artificial drainage/greenhouses are present. As proposed in section 3.1, Member States should exclude those areas or administrative units where at least 50% of that area or administrative unit is covered by such investments.

At this point, Member States should consider and choose the adequate approach to economic fine-tuning, i.e. to excluding those areas where natural constraints have been overcome by economic activities. Possible indicators are outlined in section 3.2 of this

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7 http://agrienv.jrc.ec.europa.eu/publications/Updated-ANC-biophysical.pdf

8 With the exception of the fine-tuning step (excluding land which is irrigated/drained/covered by greenhouses), for which only some Member States opted, this methodology was applied successfully applied by all Member States in their simulations.

document. Depending on the detail of available data in each Member State, either LAU2s can be targeted directly, or larger units can be considered.

This paper considers the Standard Output or Gross Value Added indicators to be the most versatile ones and therefore to be is used for the following example:

Let's presume that a Member State considers LAU2 as the adequate unit for economic fine-tuning. The final administrative map of natural constraints is based on administrative units where all agricultural area is considered to be constrained, as explained earlier. For the purpose of fine-tuning with the use of SO, we take an administrative unit ABC. This unit is located in a certain region at NUTS 2 level with SO coefficients as established by Commission Implementing Regulation 2015/220. Using FSS information on land use and livestock production, and using SO coefficients, the average SO per hectare can be established in ABC. If this value is higher than 80% of the EU average SO per hectare, ABC should be excluded from the delimitation. If this value is lower than the EU average SO per hectare, another benchmark should be used and that is 80% of the national average SO per hectare. If the value of SO per hectare in ABC is higher than 80% of the national value, ABC should be excluded from the delimitation.