

NATURE AND LANDSCAPE MANAGEMENT STANDARDS		
MANAGEMENT OF SELECTED TERRESTRIAL BIOTOPES	GRAZING	SPPK D 02 003: 2015
SERIES D		
<p>Grazing Die Weide</p> <p>This standard contains definitions of technical and technological procedures of grassland grazing management.</p> <p>References:</p> <p>Act No. 114/1992 Coll., on nature and landscape protection, as amended. Act No. 156/1998 Coll., on fertilizers, auxiliary soil substances, auxiliary plant preparations and substrates and on agrochemical testing of agricultural soils (Fertilizer Act), as amended. Act No. 246/1992 Coll., on the protection of animals against cruelty, as amended. Act No. 254/2001 Coll., on water and on amendments to certain acts (the Water Act), as amended. Government Decree No. 75/2007 Coll., on the conditions for the payment of the less favourite areas payments in the mountain areas, the areas with other handicaps and in the Natura 2000 areas on agricultural land. Government Regulation No. 262/2012 Coll., on the definition of the vulnerable areas and the action program. Decree No. 208/2004 Coll., on the minimum standards for the protection of livestock, as amended. Decree No. 377/2013 Coll., on the storage and method of use of fertilizers, as amended. Decree No. 395/1992 Coll., which implements some provisions of the Czech National Council Act No. 114/1992 Coll., on nature and landscape protection, as amended.</p> <p>Standard development: Faculty of Environmental Sciences, University of Life Sciences in Prague and NCA in 2013 – 2015.</p> <p>Second reader institution: Mgr. Jan Mládek, Ph.D., Faculty of Sciences, University Palacký in Olomouc Doc. Ing. Josef Hakl, Ph.D., Faculty of Agrobiolgy, Food and Natural Resources University of Life Sciences in Prague</p> <p>Authorial collective: Prof. Dr. Ing. Vilém Pavlů (coordinator), Ing. Jan Gaisler, Ph.D., Ing. Lenka Pavlů, Ph.D., Prof. RNDr. Michal Hejcman, Ph.D. et Ph.D., Ing. Vendula Ludvíková, Ph.D., Mgr. Andrea Svobodová, Prof. RNDr. František Krahulec, CSc., Ing. Daniela Steinbachová</p> <p>Illustrations: Ing. Jan Gaisler</p> <p>Documentation for standard development is available in the library of NCA CR.</p> <p>Standard approved by</p> <p style="text-align: right;">RNDr. František Pelc Director of NCA CR</p>		

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1. The purpose and the content of the standard

The standard “Grazing” defines procedures for grazing on grasslands for the purpose of maintenance of near-natural ecosystems, plant and animal habitats, eventually of its enhancing, and general maintenance or improvement of biodiversity.

The standard is intended primarily for applicants for support from landscape funding programs, i.e. contractors, government and self-government workers, non-governmental organizations, farmers, land owners and land users.

The standard is intended for grazing in the protected areas and valuable habitats in the landscape outside the protected areas and it is not focused on grazing oriented to animal production. The selection of management procedure is dependent on the locality features and it is influenced by many factors.

2. Grazing systems

2.1 Continuous grazing

2.1.1. Continuous grazing of animals during the year or the grazing season on one pasture (grazing plot)

2.1.2. Grazing is carried out with a constant or variable grazing intensity (constant or variable number of animals in the pasture) during the grazing season.

2.1.3. **Extensive continuous grazing** is unregulated using of pastures.

2.1.3.1. Animals move freely in one pasture (plot) during whole grazing season.

2.1.3.2. The stand is grazed selectively, at first the most nutritious plants and less nutritious and old plants are grazed in the second half of the grazing season.

2.1.3.3. This grazing system is used on the pastures with livestock intensity of up to 0.5 – 1.0 LU per ha (1 LU = 500 kg of the live weight).

2.1.4. **Intensive continuous grazing** is grazing with a high number of LUs per ha, the pasture is used more intensively.

2.1.4.1 Animals are located in one pasture (grazing plot) till the stand is grazed, then they are moved to another area. The sward must not be damaged.

2.1.4.2 Livestock intensity is 1.5 – 3 LU per ha and it is adapted according to the intensity of fodder growth by a change of the pasture area or the animal number.

2.2 Rotational grazing

2.2.1 Grazing of two and more pastures (plots), where the period of grazing is alternating with the period of grass growth in the plot, and it is approximately 4-6 weeks long.

2.2.2. Duration of pasture grazing depends on the grass yield, on the environmental conditions and on the number of livestock present in a pasture.

2.2.3 Grazing cycle is grazing of the grass stand in a plot. Number of grazing cycles varied from 1 to 6 in one vegetation season. Number of livestock in the pasture is stable or variable.

2.2.4 Rotational grazing – the pasture is divided into several plots according to the land surface configuration; each of the parts is grazed for 10-20 days.

2.2.4.1 Selective grazing (grazing of only more nutritious and delicious plant species or plant parts) is partly limited by the gradual grazing of the pasture plots.

2.2.4.2 The grass stand includes a great portion of the areas with the grasses and herbs which finished their blossoming and are not grazed by the livestock.

2.2.4.3 This method is the semi-extensive grazing method with livestock intensity up to cca 1.5 LU per ha and it is appropriate for the worse accessible areas.

2.2.5 Rotational grazing in a high number of paddocks – a pasture is divided into a big number of plots/paddocks (6-24); the size of the plots/paddocks is stated according to the conditions of the habitat, the grass yield and the herd size, each plot should be grazed in 2-5 days.

2.2.5.1 Selective grazing can be reduced by swift rotation of the plots and by their alternation.

2.2.5.2 This method is an intermediate type between extensive and intensive grazing with livestock intensity 1.5 - 3 LU per ha.

2.3 One-time grazing

2.3.1 Short-term grazing (1-3 days) of the area using high livestock intensity, the most of the grassland biomass is grazed by the animals.

2.3.2 Grazing is not suitable for wet grasslands (wet grass stands, rainy weather).

2.4. Grazing with shepherd dogs

2.4.1. It is carried on the places where it is not possible to fence the pasture. Shepherd dogs are herding the animals and beside it protecting them against big beasts.

2.4.2 Only trained dogs of shepherd breeds are used for this purpose.

2.4.3 It is necessary to ensure safety of passers-by in absence of the shepherd.

2.4.4. It is necessary to ensure an unlimited motion of shepherd dogs with a herd.

3. Livestock intensity in the pasture

3.1 Livestock intensity in a pasture is expressed by a number or weight of animals per an area unit. It is given usually by a number of big livestock units or livestock units (LU) (1 LU is 500 kg live weight of an animal).

3.2 Conversion factors for livestock units for different types of livestock are given in the Decree No. 377/2013 Coll., and for big livestock units (“big” LU) in the Decree No. 75/2007 Coll.

4. Height of the grass stand

Height of a grass stand is a tentative criterion for establishing of amount of available fodder and its quality, too.

4.1 Height of a grass stand before beginning of grazing

4.1.1 For grazing by cows, rotational grazing system, the appropriate height of the stand before grazing is 20-25 cm, the optimal stand height for sheep is 10-15 cm.

4.1.2 When a continuous grazing is done, the grass stand height is maintained 5-10 cm for cows and cca 3-5 cm for sheep.

4.2 Height of grazed grass stand according to intensity of grazing

- 4.2.1
- 1) intensive 3-5-cm
 - 2) medium 5-15 cm
 - 3) extensive more than 15 cm

5. Fences of the pastures

A technical equipment preventing grazing animals from free movement outside the fenced part of the pasture. Fence can be solid, which is placed in the site for several years, or mobile, which serves for temporary fencing, or dividing of big pastures.

5.1 Solid fence

5.1.1 Wooden fence – wooden poles are nailed down to vertical stakes.

5.1.1.1 A hard-wearing type of wood of the local origin will be used. It is possible to apply an impregnation for prolonging of the stakes' lifetime.

5.1.2 Combined fence (metal and wood) – metal stitches are soldered on metal stakes; wooden poles are placed in it.

5.1.3 Electrical fence – vertical stakes from different material bring insulators, conductors are placed horizontally in it (metal wire, cable, tapes).

5.1.4 Wire netting – wire netting is fixed on vertical stakes from different material (metal, wood, plastic).

5.1.5 Distance between stakes should be 3-10 m long, when cables or wires are used, and 3-5 m for a wire netting or wooden poles, according to the terrain configuration.

5.1.6 Stakes should be placed in the ground to the depth of at least 40 cm.

5.2 Mobile fence

5.2.1 Pasture pins from various materials (plastic, laminated plastic, metal) are used for the fence, the pins bring holders for a rope, ribbon or net with electrical conductor.

5.2.2 It is possible to use also wooden laths with screwed on insulators (or screws insulated by a cut up hose made from rubber or plastic).

5.2.3 When some roads and public paths are placed nearby, the electrical fence should be marked by visible warning signs highlighting it.

5.2.4 Chase lines and handling corrals can be built from all-metal structures from welded sections, fastened to the ground to prevent a section movement.

5.3 Source of electrical impulses

5.3.1 Source of electrical impulses emits interrupted electrical impulses with voltage cca 2 000 – 15 000 V, depending on the type and length of the fence.

5.3.2 Devices must be connected to earth according to the producer instruction for use and to be equipped with a fuse for a case of a lightning strike.

5.3.3 Sources of impulses for electrical fences differ according to the connection to the source of energy:

Network – it is connected to the electrical net

Battery – it takes energy from batteries

Solar - it gets energy from the sun's radiation, which is transferred to the batteries.

5.4 Height of the fence

5.4.1 The minimum height of a fence differs according to the grazing animals (see Annex No. 2):

- cattle 90 cm

- sheep 90 cm

- goats 120 cm (males 150 cm)

- horses 140 cm

5.4.2 In the case of the electric fence, it is necessary to use multiple row wires (2-3) for most of the animals; in particular for sheep and goats it is necessary to install a row wire also in the height of 20-40 cm to prevent effectively undergoung the fence.

5.4.3 When removing the fence, all material will be removed from the pasture to prevent an injury of the persons, animals, game or agricultural machinery.

5.5 Passage of the pastures

5.5.1 The fenced plot will be secured by technical or other measures placed at a suitable location of the plot so as to ensure the possibility of their free passage (e.g. installation of the gate, wire with insulator, etc.).

5.6 Protection of trees and shrubs in the pastures

5.6.1 Trees and shrubs, which are not subject of grazing, will be protected against the damage caused by animals.

5.6.2 Protection around a wood is a part of the solid or electrical fence (see the solid or electrical fence).

5.6.3 Protection from stakes with the diameter of at least 8 cm and the mesh will be formed around the stems of solitaire trees.

5.5.4 The protection must be enough sturdy to withstand the pressure of scratching animals, and adequately dense to prevent a damage of the bark, especially of young trees, by grazing.

5.7 Wetlands in the pasture

5.7.1 The area of wetlands, where grazing is not desirable, will be fenced to prevent an entrance of grazing animals (see the former chapter).

6. Drinking points for the animals

6.1 There must be **enough drinking points** in the pasture to avoid excessive turf disturbance and soil erosion around the watering place.

6.2 When **using a brook** as a permanent drinking point, it is necessary to set up a drinking surface with a reinforced surface (gravel, non-stained sleepers, or a pavement) and to fence the approach to water for animals.

6.3 When the source of water (or reservoir) above the pasture is abundant, it is possible to transport water **by gravity** with a help of a **pasture water main**. When a naturally valuable source of water (a spring, water stream) is directly in a pasture, the water source will be fenced to avoid its damaging by animal feet's.

6.4 Mobile water reservoirs with several feeders are used in the pastures without a natural source of water and constructed drinking points. The water is carried by the herd and supplemented according to the water consumption of the animals.

7. Additional feeding of animals

7.1 In periods with a slow growth of plant biomass or grazing of fodder with a high content of nitrogen substances and a low content of the roughage, the animals can be fed additionally in the pasture.

7.2 The hay, straw, grout and pollard are suitable for additional feeding.

7.3 Additional feeding must be carried out in the specially defined places outside the protected habitat to avoid its damaging.

7.4 Animals must have an access to a mineral salt lick block during the grazing period.

8. Mechanical operations in pastures

8.1 Smoothing the surface using a mechanical intervention of pasture smoothing in grass in the spring, removes in particular small soil surface unevenness's – e.g. mole hills. Rest of excrements from the last grazing season is also spread.

8.1.1 Light smoothings (annular, segmented) will be used to adapt to terrain inequalities and well-spread excrements without destructive impact on the stand. Beam smoothings with linear working mechanism are not inadmissible for a pasture.

8.2 Harrowing with meadow harrows is possible in cases, when the target species are short-living species (e.g. annual and biennial plants, like *Euphrasia*, *Gentianella* sp.), or when it is necessary to rake the moss layer.

8.3 It is not recommended to use it in the case of invasive and expansive species occurrence.

9. Removing of ungrazed stand parts

9.1 Three main types of ungrazed stand parts in pastures: 1) ungrazed parts around excrements of grazed animals, 2) ungrazed parts of poisonous, thorny plants and plants with inferior fodder value, 3) ungrazed parts formed by higher fodder offer than uptake by animals and follow-up ageing of grassland stand (usually under lower livestock intensity in a pasture).

9.2 Ungrazed parts are not mostly removed from pastures, unless they include plant species named in 9.3. Ungrazed parts bring needed diversity in time and space (source of food, shelter, breeding sites) into the landscape. Ungrazed parts in the grazed meadows are removed by cutting, if the aim of management is the cut meadow.

9.3 In the case of occurrence of undesirable plant species (invasive and expansive) in ungrazed parts it is acted in accordance with the Standard SPPK D02 007 “Removal of selected invasive and expansive plant species” (including follow-up site management).

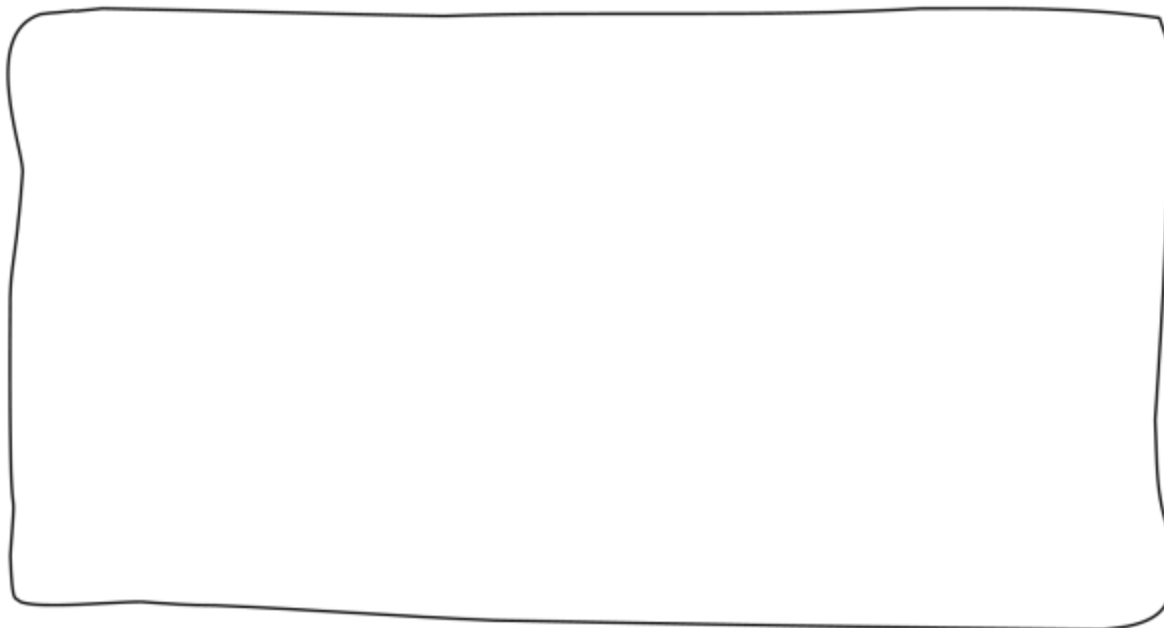
10. Fertilizing of the pastures

10.1 Pastures can be fertilized by mineral and organic fertilizers, except for the restrictions pursuant to the Act No. 114/1992 Coll. The amount applied, type and term of an application of fertilizers will be determined taking into account the results of agrochemical soil testing.

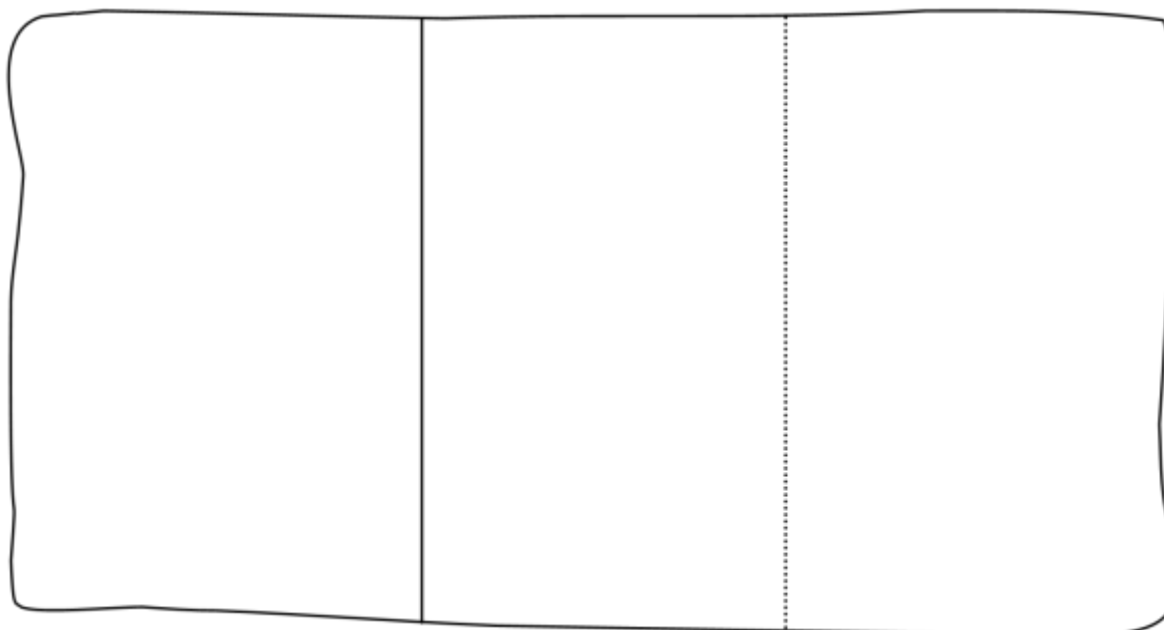
10.2 Sheeppark is a way of fertilizing, during which the animals are closed after the day of grazing for the night in the enclosures (paddocks for sheeppark).

10.2.1 Intensity of fertilising depends on the concentration of the animals, area and number of nights spent in the enclosure.

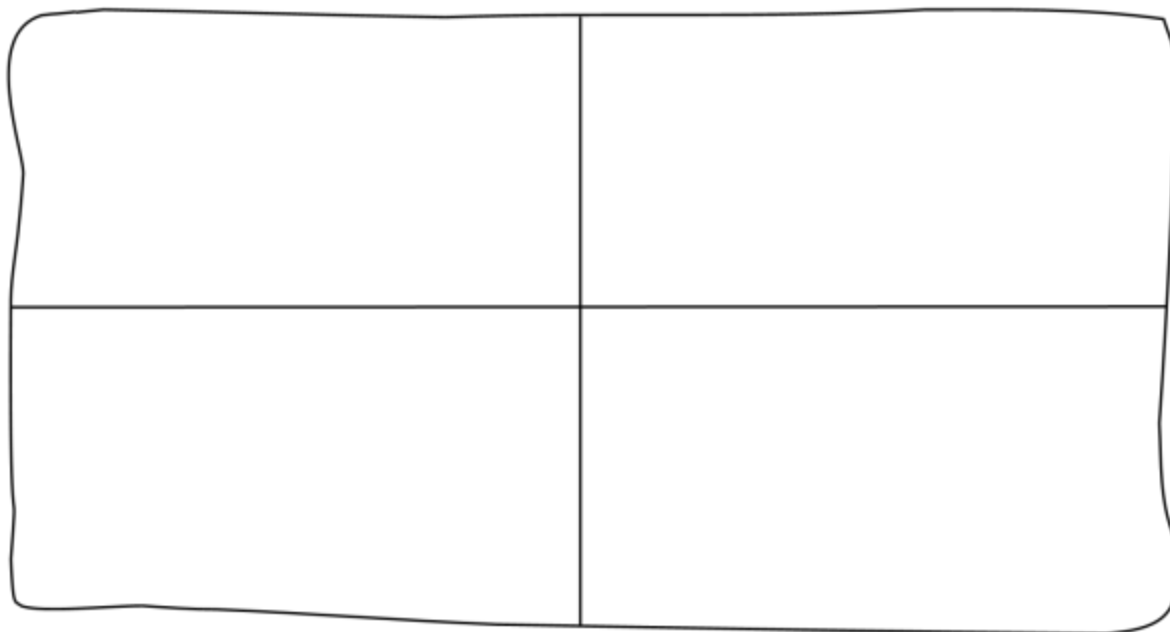
Annex No. 1 Schematic picture of grazing systems



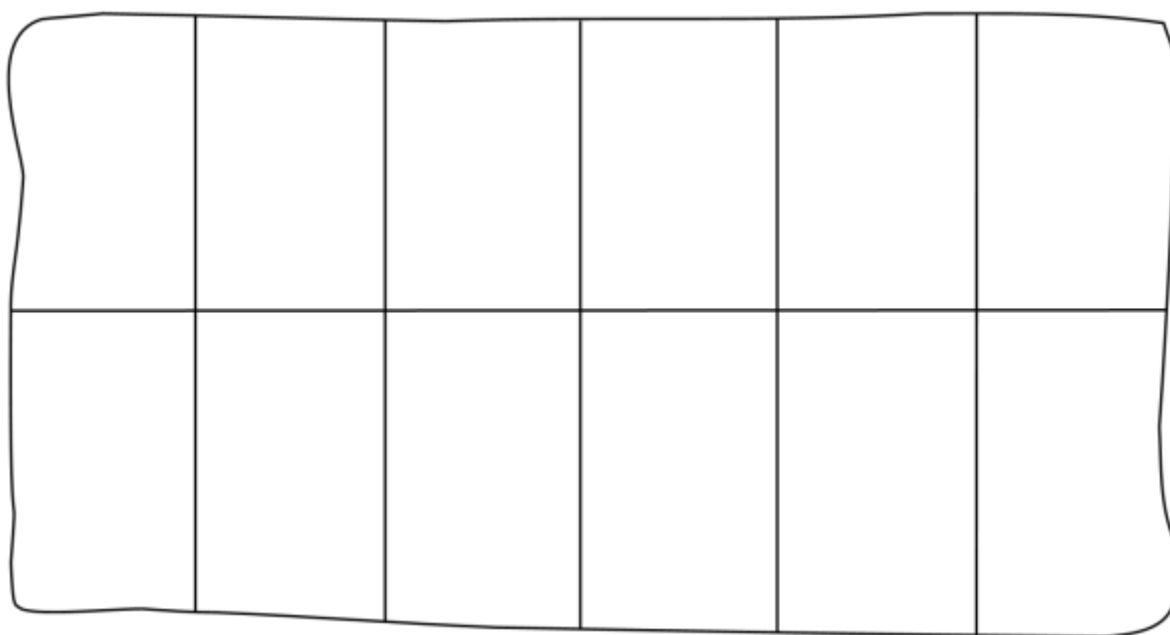
Permanent grazing in one pasture plot



Modified permanent grazing with progressive adding of grazing during the vegetation

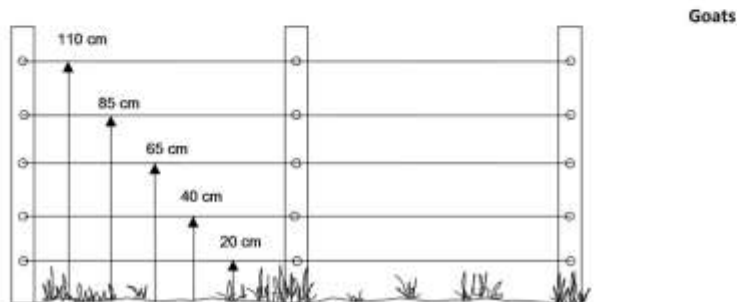
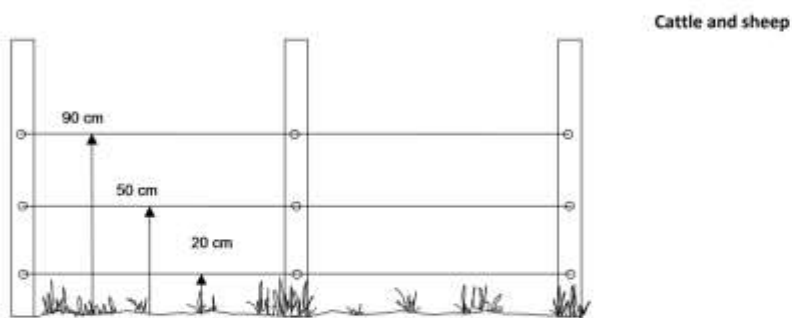
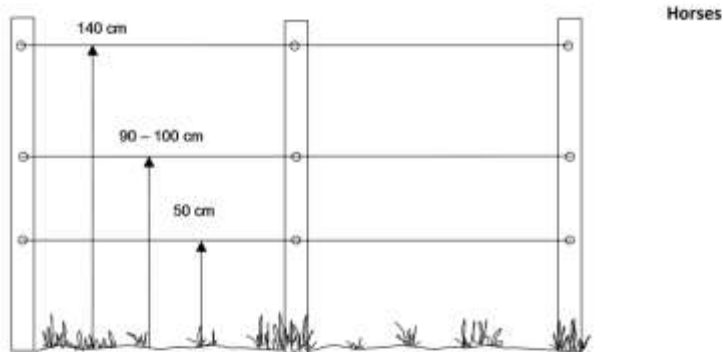
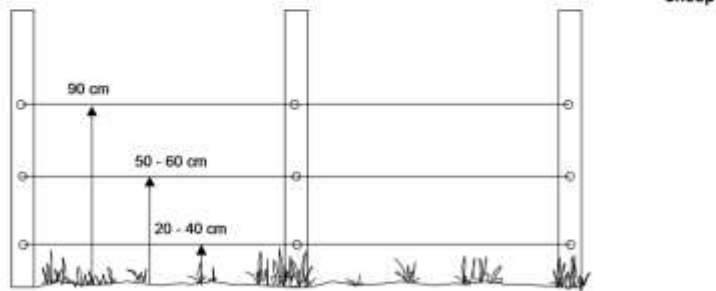
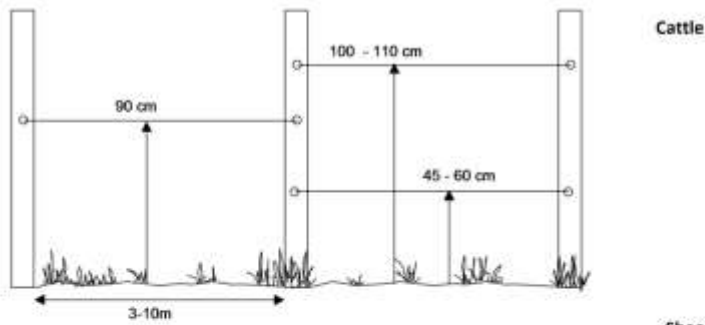


Rotational grazing in paddocks



Rotational grazing in plots/paddocks (10-15 plots)

Annex No. 2 Recommended heights of electrical fencing for various animals



**Annex No. 3 List of processed Standards of nature and landscape management
(Management of selected terrestrial ecosystems)**

00 General

00 001 Terminology

02 Technological procedures

02 001 Restoration of grassland communities by using regional mixes

02 002 Restoration of long-term unmanaged grassland communities (including removal of natural seeding woods)

02 003 Management of grassland – Grazing

02 004 Management of grassland – mowing

02 005 Disturbing management on non-forest areas

02 006 Measures to improve species composition of forest stands

02 007 Removal of selected invasive and expansive plant species” (including follow-up site management).

03 Occupational safety and health protection

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