

Mineral and compound feed for deer



Pre***min***®

The pathway to your trophy...

Loose mineral feed products

Premi[®] Roe Deer is a special mineral feed in powder form for roe deer. It contains the macroelements calcium, phosphorus, sodium, magnesium, trace elements copper, manganese, zinc, selenium, iodine, cobalt and vitamins A, D3, E a C. Vitamin C is important for good bone development and collagen formation. It is a peculiarity of roe deer that the animals are unable to synthesize collagen in their bodies. Add 4% to the feed mix for roe deer.

Premi[®] Red, Fallow Deer is mineral feed powder for the two deer species. Contains the macroelements calcium, phosphorus, sodium, magnesium, the trace elements copper, manganese, zinc, selenium, iodine, and cobalt. and vitamins A, D3, E. This feed is enriched with *Saccharomyces cerevisiae* yeast culture increasing digestibility of feeds, utilization of minerals from ingested feeds and supporting good health status. Add 4% to the feed mix for red deer and fallow deer.

Premi[®] Mouflon is a mineral feed powder for mouflons and all cavicorns. It contains the macroelements calcium, phosphorus, sodium, magnesium, the trace elements copper, manganese, zinc, selenium, iodine, and cobalt, and vitamins A, D3, E. This feed is enriched with *Saccharomyces cerevisiae* yeast culture increasing digestibility of feeds, utilization of minerals from ingested feeds and supporting good health status. Furthermore, this feed contains the vitamin biotin, and a fraction of zinc is present in an organic form, and hence, is better biologically usable. The two additives support formation of keratin. Add 4% to the feed mix.

Premi[®] Free-Choice Minerals II is intended as material for mineral licks for use by any game species. It must be available to the animals all year around. It contains the macroelements calcium, phosphorus, sodium, magnesium, the trace elements copper, manganese, zinc, selenium, iodine, and cobalt, and vitamins A, D3, E. This feed is intended to balance the mineral deficit that is encountered so often in today's cultural landscape. Availability of appropriate minerals in appropriate quantities is a precondition for the game to exhibit its genetic and trophy potential. Unrestricted accessibility to mineral nutrients is important for all deer species. It is vital for does during the lactation and nursing period. Once game learns to visit the mineral lick, the animals will do so again and again throughout the year.

Composition

		Premi [®] Roe Deer	Premi [®] Red, Fallow Deer	Premi [®] Mouflon	Premi [®] Free-Choice Minerals II	Premi [®] Mineral Pellet Antler	Premi [®] Mineral Pellet Horn
	Unit						
Calcium	%	25	24,5	20	21	11	10
Phosphorus	%	13	12,8	9	10,5	6,2	5
Sodium	%	9	9	3,5	10	4	1,8
Magnesium	%	2	2	2,2	5	1,1	1,3
Copper	mg	625	625	10	1250	280	12
Manganese	mg	3750	3750	750	6500	1690	400
Zinc anorg.	mg	3000	3000	1150	8000	1360	620
Zinc org.	mg			550			275
Iodine	mg	50	50	20	80	22,5	10
Cobalt	mg	20	20	5	17	9	2,5
Selenium	mg	13	13	6	25	5,6	3
Vitamin A	m.j.	250000	250000	200000		112500	100000
Vitamin D3	m.j.	100000	100000	35000		45000	17500
Vitamin E (alfat.)	mg	400	400	1350		180	675
Vitamin C	mg	2000					
Saccharomyces c.			+	+			+
Biotin	mg			50			25

Granulated mineral feed

Premi[®] Mineral Pellet – Antler - Contains the macroelements calcium, phosphorus, sodium, magnesium, the trace elements copper, manganese, zinc, selenium, iodine, and cobalt, and vitamins A, D3, E. Its use is identical with that of Premi[®] Roe Deer and Premi[®] Red, Fallow Deer. The only difference is in that its share in the feed mix should be 8%. The product is granulated and is used by those who do not find mineral feed in the loose form convenient. The mineral granules will mix well with the whole grains of crops, they do not separate off. The product is intended for all antlered deer species.

Premi[®] Mineral Pellet - Horn - contains 50% Premi[®] Mouflon. The recommended proportion in the feed mix is 8%. The advantages of the mineral granules are identical with those of the antlered game variant.

Granulated complementary feed

Premi[®] Mix Antler is a granulated protein concentrate, which must be added to the feed mix in a proportion of 10-30%. It serves to enrich the feed with proteins, macroelements, the trace elements and vitamins.

Premi[®] Mix Mouflon is a granulated protein concentrate for mouflons, which must be added to the feed mix in a proportion of 50%.

Premi[®] Mix Breed is intended for universal use as supplementary feed for free ranging ruminant game from autumn to spring. It can be used throughout the year in enclosures or farms. The product is composed of high-quality materials. It contains nutrients such as proteins, energy, fibre, the macroelements calcium, phosphorus, sodium, magnesium, the trace elements copper, manganese, zinc, selenium, iodine, and cobalt, and vitamins A, D3, E.

Composition

		Premi [®] Mix Breed	Premi [®] Mix Protein	Premi [®] Mix Protein Plus	Premi [®] Mix Antler	Premi [®] Mix Mouflon
Crude protein	%	11,2	16	22	31	19
Crude fat	%	3,6	3,3	3	1,5	3,7
Crude fiber	%	10	12	12,5	5,8	10
Crude Ash	%	8	9,2	9,4	24,2	14,4
Calcium	%	1,2	1,5	1,5	5,3	2,7
Phosphorus	%	0,9	0,9	0,9	3	1,7
Sodium	%	0,5	0,5	0,4	2	0,6
Magnesium	%	0,3	0,3	0,3	0,6	0,6
Copper	mg	25	27	31,8	138	6,7
Manganese	mg	170	175	178	770	100
Zinc anorg.	mg	134	137	145	630	160
Zinc org.	mg	-	-	-	-	66
Iodine	mg	2	2	2	10	2,5
Cobalt	mg	0,9	0,9	0,9	4	0,7
Selenium	mg	0,6	0,6	0,6	2,7	0,8
Vitamin A	m.j.	10000	10000	10000	50000	24000
Vitamin D3	m.j.	4000	4000	4000	20000	4200
Vitamin E (alfat.)	mg	16	16	16	80	160
Saccharomyces c.		-	-	-	-	+
Biotin	mg	-	-	-	-	6

Premín® Mix Protein is a granulated complementary feed similar to Premín Mix Breed but with high value proteins – nitrogen substances. It is designed for use during the game's production season – during the development of antlers for males and during pregnancy and nursing for females. This feed can be used throughout the year in intensive breeding.

Premín® Mix Protein Plus is a granulated feed mix having the highest protein content of the 3 complementary granulated feed types. It can be used ad libitum. A fraction of the proteins is present in the form of rumen-protected proteins to support vigorous antler growth in males and foetal development and nursing in females. It should be used during these production seasons of the year only. It may be mixed with cereals or other feed types.

With good way of feeding can count on the following consumption:

Roe deer 0,2 – 1 kg/day

Fallow deer 0,75 – 1,5 kg/day

Red deer 1 – 2 kg/day

Feed consumption is affected

- Way of feeding
- Game habituation to food
- Temperature, rainfall
- Snow cover
- Year period



Importance of mineral feed accessible at mineral lick sites all year long

Why replace salt at mineral licks with mineral feed?

Every gamekeeper knows that he must have and operate mineral licks with salt. Salt is available all year long, the animals can have it whenever they need it. Sodium in salt is very important for the functioning of the body. Equally important to the animals, however, are other nutrients such as calcium and phosphorus, which are the main minerals needed for bone development and antler growth. Additional elements include, for instance, magnesium and trace metals, and also vitamins. All of those minerals and vitamins are present in loose mineral feed (mineral licks) to meet all requirements for such nutrients.

Game has the opportunity to get mineral substances from natural feed of plant origin. This is the best source; however, the mineral content in plant tissue depends on the mineral content of the soil. Other methods to give the game mineral substances is by providing them with mineral feed, i.e. either with some commercially available product with minerals as such or with mineral feed added by the gamekeepers to their homemade feed mix. And one possibility is to use loose mineral feed intended for placing at mineral licks.

Mineral feed for licks contains salt as the sodium source of course, plus calcium, phosphorus and magnesium as macro-elements. Trace elements include copper, manganese, zinc, selenium, cobalt and iodine. And if vitamins are present, they largely include vitamins A, D3 and E.

Salt is the main source of sodium and chlorine. This fact has been known for centuries that the salt content of plants is low, so game animals seek other salt sources. For this reason, salt as such is provided to game. Favourably enough, salt is an inexpensive product. Many scientific studies suggest that sodium may be the only mineral nutrient whose deficit can be recognised by the animal body and the animal seeks for a source to supplement its body with salt. This ability is called **nutritional wisdom**. Among important properties of salt is palatability; in fact many other minerals are not tasty. Thus, salt is very frequently used as a carrier for other mineral materials.

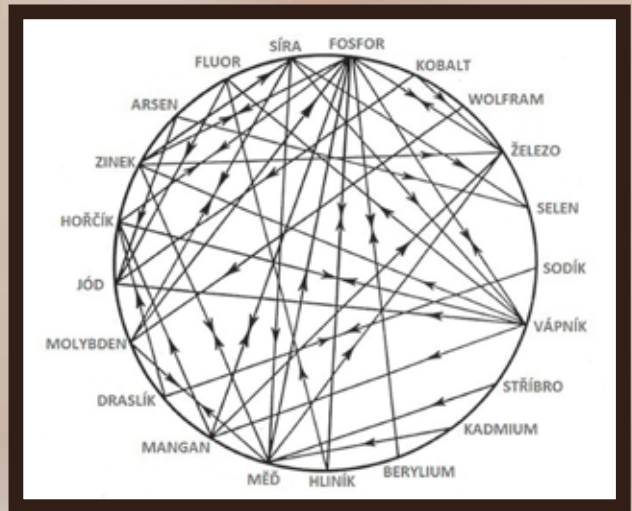
Which factors affect mineral feed intake by game at mineral licks?

- ▶ Animal species and body size
- ▶ The animal's life cycle phase (production or off-production – body growth, antler growth, pregnancy, nursing, rut, ...)
- ▶ Ripeness stage of forage and other plant sources
- ▶ Total amount of dry matter in the feed ration
- ▶ Previous and current programme of providing game with mineral feed
- ▶ Mineral content of soil
- ▶ Distance between the mineral lick and a water source
- ▶ Number of licks, number of animals and accessibility to the licks by the animals
- ▶ Taste preferences

The animals will take minerals from licks if their bodies need them (this concerns sodium in particular). Stress is also an important factor. The need for minerals increases in high stress situations. The animal's body needs more minerals, also if it is attacked by parasites or some infection. Last, but not least, the interrelations between the mineral substances must also be taken into account. Excess of one mineral nutrient in soil or feed may bring about higher need for another nutrient. Interrelations among mineral nutrients are very complex and are depicted in the mineral ring.

MINERAL LICK

What may be the reasons why the animals reject mineral feed in a lick? Naturally, a new thing is a strange thing. The animals must get accustomed to a new feed type. The time for the game to get accustomed to new feed is very different and depends on many factors. You must simply be patient. It is important to remove the traditional salt from the mineral lick because the animals are accustomed to salt, like it better and prefer salt to other sources of mineral substances. It is important, of course, to acquaint oneself with the salt content of the mineral feed deposited at the mineral lick. Other factors that may be the cause of the mineral feed being rejected by the animals include sufficient mineral uptake from natural feed or water. The mineral content of pasture and other feed of plant origin is directly proportional to the mineral composition of the soil. Mineral nutrients that are naturally present in feed are better used by the animal body, and so sites with adequate mineral content of soil are advantageous. Regrettably, the amount of mineral substances in nature is generally inadequate, and mineral feed must be used for the game to be able to demonstrate its genetic and trophy potential. Among other factors that may be responsible for the mineral feed being rejected by the animals is the animals' off-production stage, i.e. the time when antlers do not grow, the does are not pregnant, etc. The season of the year may also play a role. Too low protein and energy levels in the feed may also be a reason for a lower need for mineral substances.



Practical information:

- At the beginning put a smaller amount of mineral feed into the feeder for the starting period
- Place a piece of salt (which animals are used to lick) on the top of mineral feed
- Monitor a consumption of mineral feed in the feeder
- Once game animals start to take the mineral feed regularly, fill up feeders with bigger amount
- If stone salt, previously placed on mineral feed, is completely licked up, do not refill it
- Avoid empty feeders, when mineral feed is completely consumed
- Keep sufficient number of feeders in use. All game animals have to have the access to the mineral feed lick all year around. The best strategy is to create the net of feeders which you draw into the map.
- Keep mineral feed licks clean and free of dirt and droppings

Mineral licks should be sheltered from rain in order to avoid rapid extraction of soluble nutrients. If animals lick mineral feed with salt, they have a larger need for water. Water sources should be available. The mineral lick type and size must match the game species visiting it. At the antler growth stage the males are sensitive to the environment and, being afraid of antler injury, may refuse to visit an unsuitably designed mineral lick. A gamekeeper on a free range hunting ground, in enclosures or on farms, should build a mineral lick network appropriate to the site and the animals' needs. Building a mineral lick directly at the feeders is not advisable in view of the large concentration of animals at the feeder and hence, enhanced parasitosis transmission hazard.

The use of mineral feed at mineral licks is the simplest way to provide the animals with a whole complex of mineral nutrients, all year around.

Practical examples of different types of Free-choice minerals feeders. Their design is not important. The functionality is crucial.

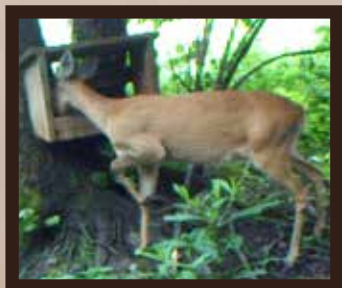


Building a mineral lick network in hunting districts, aimed at roe deer

Mineral licks serve to deposit loose mineral feed for spontaneous use by game. Mineral licks are important primarily because they offer free uptake of mineral substances by game. Mineral feed is intended as a mineral lick fill instead of block salt and should be available all year around. Apart from salt, which is, of course, an ingredient, the “Premin® SLANISKO” mineral feed contains calcium, phosphorus and magnesium, i.e. nutrients which are necessary for bone and antler development. This feed also contains vital trace elements and vitamins to make up for the deficit, so often encountered in today's cultural landscape. Availability of appropriate minerals in appropriate quantities is a precondition for the game to exhibit its genetic and trophy potential. Unrestricted accessibility to mineral nutrients is important for all deer species. It is vital for does during lactating and nursing periods. Once game learns to visit the mineral lick, the animals will do so again and again throughout the year.

Building a **well-designed network of mineral licks is a must when breeding roe deer**. The number of mineral licks should be selected so that one mineral lick can serve 5 animals. Given the typical current roe deer density, one mineral lick will be appropriate for 25-50 hectares in the hunting district. This is important because the mineral licks should be accessible to all roe deer throughout the year and, in particular, in the vegetation season when the game is scattered and the whole area is divided into territories.

Illustration of mineral feed „Premin® FREE-CHOICE Minerals“ intake of roe deer



Different **mineral lick types** exist for use at different hunting grounds, and it is only up to the hunting ground user which type to build. Hares and other cloven-hoofed animal species must also be taken into account in this context, of course. The mineral licks must be sheltered to avoid fast leaching of nutrients from the mineral feed by rainwater. The mineral lick type must suit the animal species for which it is intended. A mineral lick must be designed so as to be freely accessible by antlered deer males. It is particularly during the antler growth period that the roe deer need adequate amounts of mineral substances, and the roebuck will not visit an unsuitably designed mineral lick to avoid damage to its growing antlers. If the mineral lick is sheltered, it will normally be sufficient to add new lick twice a year, in spring and in autumn, but it is advisable to inspect the site more frequently and add the minerals if used. The volume of usable space for putting in the mineral feed should be adequate for the whole interim period till the next addition. This should be designed based on knowledge of the amount of the mineral feed spent during the period in question.

We recommend “Premin® SLANISKO” [Premin® Mineral Lick] for the mineral lick. This is loose feed which has been successfully manufactured by VVS Verměřovice for many years now. Our customers have had very good experience with this feed and the game likes it. Now we are also engaged in a project to ascertain how much of this product is actually used by roe deer, red deer, fallow deer and mouflons in different breeding conditions – wildlife, enclosures, farms, minor breeders. The objective of the project is, during a longer period of time to ascertain how much freely accessible mineral feed was used up by the various game species in different breeding conditions and during the seasons of the year. This information will be useful in determining the needs for mineral feed by the game and in deciding if the mineral feed we produce can be upgraded to increase its effectiveness. We thank very much our project partners who have engaged themselves enthusiastically

in the monitoring activities. Implementation of the project would be impossible without their contribution.

In some hunting districts the mineral licks are part of the supplementary feeding equipment (feeders). We do not consider this approach appropriate. In any case, mineral licks must be distributed throughout other areas of the hunting district as well. This is important because the number of feeders is usually much lower, they are not available everywhere in the hunting district and do not match the territorial distribution of the roe deer during the plant growing season.

Another reason is the fact (which everybody can see in practice) that when coming to a mineral lick, roe deer usually grazes in its vicinity, sometimes for quite a long time, or that the deer visits the lick intermittently. The likelihood of roe deer infection with parasitic worms is also substantially higher at a feeder. The parasitic worm eggs are very resistant, and so the efficiency of disinfestation after the winter feeding season may not be perfect. In addition, the presence of larvae of the lungworm, which climb the plants (and sometimes the mineral licks a well) up to a height of about 80 cm, can be expected.

The mineral licks are visited by roe deer all year long, especially in early spring, when the game starts grazing. The does visit mineral licks during the lactation period and in autumn during the moulting period. It is interesting that since the time they start following the does, fawns take over the habits of the mother and lick mineral feed first just out of curiosity, to adopt this habit fully later. He who watches roe deer frequently will find that everything runs hierarchically at a mineral lick.

Every mineral lick is practically the centre of the territory of the strongest roebuck in the area. Given a well-working mineral salt network with respect to the landscape and to the ground, which suits older roebucks, you can distribute the roebucks as you wish. Does are respected by the territorial roebucks at mineral licks but they always alternate there. Typically, a younger doe approaches the lick in spring and leaves it when an older doe approaches. In early summer, fawns visit mineral licks together with their mothers. In early spring, when the oldest roebucks start fraying and territories are being shaped, one/two year old roebucks are always the first to visit a mineral lick. Usually a medium old roebuck follows, and the younger animals leave the lick and go away to a distance of some 100 m from the older roebuck, where they continue grazing. The near surroundings of a mineral lick is usually marked with signs of fraying and other identification signs of the territorial roebuck, which inspects and defends this area periodically.

Building a mineral lick network is of fundamental importance within targeted efforts to attain game quality improvement. The figure shows a segment of a roe deer hunting district 400 ha size with mineral lick distribution based on the following long-established rule: 1 mineral lick per feeder. This implies 5 mineral licks per 400 hectares.

Previous status of Free-choice minerals feeders in hunting area



Current status of Free-choice minerals feeders in hunting area



After assessing the situation and based on recommendations of the authors of the book "Metodika aplikace doplňkových minerálních krmiv chovu spárkaté zvěře" [Methodology of application of complementary mineral feeds for gamekeepers], issued by VVS Verměřovice as its publication, we prepared a mineral lick network and built it in one segment of a model hunting district in spring 2014. The current mineral lick network is shown in the next figure. It was our ambition to build a mineral lick at each site where roe deer occur, particularly during the plant growth season. Only time will show if 28 mineral licks, i.e. 1 lick per 14 ha, is too many. Now we are going to wait 4 years. Then we will evaluate Premin® FREE CHOICE MINERALS mineral feed consumption at each mineral lick, and only based on the results we will decide which licks to preserve and which to remove.

Pasture mixtures for game

Game nutrition is one of the main factors, if not the most important factor determining the animals development, quality of trophy but also the impact of damage due to girdling or browsing. In the case of small game if suitable pasture is offered, especially in critical seasons, it limits the factors for successful reproduction and survival. There are many expert papers written on this subject from Germany, Slovakia and the Czech Republic. This unfortunately only applies on a basic level, in practice the foundation of a small field almost always crashes in some „insurmountable“ problems. In fact when someone really wants to improve the environment of the hunting ground, there is always some free piece of ground. It doesn't have to be for the whole year or even for more years - we can use intercrop.

The second problem is that very often if the hunters can use at least a small field, they put there corn, alfalfa, another agricultural crop or ordinary clover. In the case of wild boar then these fields are used for the facilitation of hunting. To the landscape don't get such a necessary higher quality this way - pasture offer for small and hoofed game. Unfortunately with this method the countryside doesn't have the needed quality for small game and ungulates. Except that such covers do not help lengthen the season with offerings of green feed until the critical time after harvest.. Primarily this concerns small game, but for ungulates they too need varied species pasture, which is lacking. Common commercial mixtures contain three to five species of cultural grass (fescue, ryegrass, timothy, and sometimes with a mixture of clover), unfortunately this doesn't solve the problem. When we really want to reasonably use the land or their parts, which we have available for a foundation for pastures for game, you have to know which game you want to help and which type of pasture is in the hunting ground. Nowadays, when our landscapes are covered with rape, this for example makes the foundation areas with feeding quite questionable. (related species). It is similar with corn, no undergrowth. Principles used for using ground for small fields and grazing should be utilized to prolongate pasture seasons at the end and at the beginning of vegetation periods, annual mixtures of intercrops or monoculturals as for example forest rye. Thanks to diversity, numerous varieties we can get game animals back sooner, with perennial pasture mixes, fields with different types of grasses and herbs which are missing from the animals diet. (plantain, chamomile, buckwheat, mallow, fenugreek).

VVS Verměřovice decided that their main program of feed for game prepared for users of hunting grounds, high fence operators and farmers offer pasture mixtures, which will help to increase the quality of nutrition the game needs with natural feed in vegetation season and in the winter season too.

Premín® mixture “Vytrvalá jetelotráva” is a multiannual meadow cover suitable for hoofed and small game with high habitat tolerance. The mixture introduces an association of meadow grasses. The representation of grasses suitable to fill the space left by clovers and occupy prospective areas.

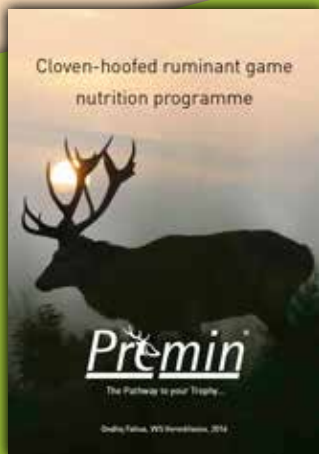
Attractiveness of cover, mainly in the first year after sowing, increases admixture of buckwheat, feeding mallow and aromatic fenugreek. The cover is attractive for hoofed game and for small game. Except quality pasture, areas sown with this mixture offer the opportunity to produce quality hay at one harvest per year (it depends on the pasture pressure of game). The advantage of this cover is its tolerance to habitat conditions and resistance to grazing and trampling. The field must be ploughed at a medium depth for sowing. Plant the seeds shallow in the ground, sow 40 kg/ha. from April till the middle of August. Early sowing is more suitable, if possible in the rainy season.

Premín® mixture “Hladové období” is a mixture, which prolongs the period when the game has access to the green pasture which is already out of the vegetation period. In the oncoming autumn, in winter and in spring the game languish and feed offered is unbalanced. Ungulates damage forest cover and agricultural crops, it lowers the condition of small game and their ability to survive. Our offered mixtures contribute to the solution of these problems. The mixture produces a large amount of biomass, which is for game available in the season of upcoming winter. There is available green pastures for game in the form of feeding cabbage, forest rye, oats and other components, in a balanced amount with smaller addition of rape during the winter months. Buckwheat contains most of the dietetic components needed. Ploughed areas are suitable to fertilize with nitrogen (up to 100 kg/N/ha), which benefits primarily the brassicaceous plants. We sow in season from July to August 36 kg/ha, to depths cca 2 - 3 cm.

Premín® mixture “Krmný biopás” responds with the requirements for „Program for development of the countryside for seasons 2014-2020.“ The main goal of the feeding biozone is to increase feeding opportunities to support and develop bird populations as well as other animal species fixed on field habitats and ecosystems connected with field localities. Utilization of grants for feeding biozones have strict rules, grants as high as 670 EUR/ha/year. Next there is an opportunity according to the Czech Government regulations n.30 from 19.2.2014 to receive 5000 Kč/ha for the foundation or maintenance of animal fields for ungulates or small game. Hunters today have two choices how to get the support from the foundation of animal fields or feeding biozones. Premín mixture “Krmný biopás” contains spring cereal (oat, wheat, barley or their mixture), buckwheat, millet, feeding cabbage and white lupine. Sowing of this mixture is 112,4 kg/ha.

Other than the mixtures we offer seeds of brassicas. Annual cover achieves heights up to 150 cm. It affords critical pasture all winter. The green mass tolerates frosts of minus 15 degrees Celsius without lowering feed value. Production of green mass depends on conditions and variety, between 100-140 tons per/ha. Sowing 2-3kg/ha in May, after sowing we recommend rolling (not conditional). Sorghum is a perennial undemanding species, very attractive to all deer and rabbits. Sowing as a monoculture or as a cover crop for permanent clover-grass covers. Sowing of “Saint Ján” (St. John’s rye) can be sown to old thinned out forest covers. Sowing cca 200 kg/ha. According to the intensity of weather conditions we can sometimes see some flowering in the first year sown. This should be prevented by cutting. Sorghum needs middle and sandy soil, on which has good resistance to dryness, but enough moisture and light strongly increase its production. Green mass has a higher content of fibre and as pasture cover its not so important. High cover provides covering and seeds for game. Sorghum can be sown in mixture with pea, soya, corn or cannabis as suitable primarily for pheasantries. The height of cover is up to 2,5 m. Sowing in May, 40 kg/ha.





New book from VVS Verměřovice Cloven-hoofed ruminant game nutrition programme



ROE DEER AND THEIR ANTLERS, STALKERS' LIFETIME EXPERIENCE

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