Fact Sheet Compiled by: Monica McDonald Last Updated: June 23, 2023 Fact Sheet Reviewed by: Cheri Asa





Active Ingredient

Melengestrol acetate

**Product Type** Progestin

## Manufacturer

Purina Animal Nutrition, LLC/PMI Nutrition International/dba Mazuri

## **Product information**

Mazuri ADF-16 Herbivore pellet with MGA (a synthetic progestin) provides an alternative contraceptive method, particularly for ungulates housed and fed in mixed species/mixed sex herds. The product is considered suitable for bovids, giraffids, cervids, camelids and hippos, but is not effective in suids or equids.

The product is available only as part of an experimental trial coordinated by the AZA Reproductive Management Center in collaboration with Purina Animal Nutrition, LLC/PMI Nutrition International/dba Mazuri brand (although other sources of MGA-treated feed are available commercially for cattle). Because the product is considered experimental, all participants must adhere to strict protocols for data collection and reporting as dictated by the Food and Drug Administration (FDA). The AZA Reproductive Management Center is responsible for maintaining data collected by study participants and, in conjunction with Purina Animal Nutrition, LLC, submits regular reports to the FDA. The FDA requires all medicated diets be manufactured under an INAD (Investigational New Animal Drugs, 21 CFR 511.1(a)). Purina Animal Nutrition, LLC was granted permission to manufacture MGA-treated herbivore pellet for use in this project under their existing INAD on file with the FDA. Therefore, all participating institutions must obtain the experimental MGA feed through the AZA Reproductive Management Center and Purina Animal Nutrition, LLC until such time as it is approved by the FDA for general manufacture and feeding. NOTE: Current FDA regulations restrict sale of MGA feed to only bovids, giraffids, cervids, camelids, and hippos, and its use in other species or without registering with the AZA Reproductive Management Center is prohibited.

## Safety to humans

When used as directed, this product poses no health risk to humans. Domestic cattle are 240 times more sensitive to MGA than are humans, i.e., a human would have to ingest a dose 240 times higher than that ingested by cattle to have the same effect. The doses recommended for exotic ungulates are within the range used for cattle. It is not hazardous material according to the OSHA Hazard Communications Standard, 29 CFR 1910.1200 or the EPA Community Right-to-Know regulations. However, protective gloves should be worn during administration, since the product is readily absorbed through skin, which at high levels might cause disruption of menstrual cycles and prolongation of pregnancy.

# Safety to treated animals

MGA has been fed for decades to domestic cattle without untoward effects, which suggests that it should be generally safe for ruminants, but there may be species differences.

# Dosing

Mazuri ADF-16 0.5MA, containing 0.5 mg MGA/lb, can be used either alone or in combination with standard Mazuri ADF-16 to achieve the recommended daily MGA dose/animal for your individual feeding program. The following daily MGA doses are recommended:

- 0.5 mg MGA/day/animal: for ungulates <800 lbs.
- 1.0 mg MGA/day/animal: for ungulates >800lbs, except for giraffes and hippos.
- 3.0 mg MGA/day/animal: giraffes and hippos

The maximum safe dose is considered to be up to 3 times those recommended here. NOTE: If the full dose is not consumed every day, the female should be separated from males, since follicle growth and ovulation may occur.

## Ordering

Before placing your first order with your Purina/Mazuri product dealer, or to add species to an existing order, you must register with the AZA Reproductive Management Center. The RMC will then notify Purina Animal Nutrition, LLC that you are an approved buyer, so you will be able to make the purchase through your regular Purina/Mazuri product dealer. Please submit the <u>MGA Feed Registration Form</u> to the person listed at the bottom of the page.

## Nutritional considerations

The amount of feed used depends on the species, the body size and your particular feeding program. MGA herbivore pellets are intended to replace the regular herbivore pellets in the current diet. The pellets should still be fed in conjunction with hay in an amount that meets the recommended minimum daily MGA dose, while still meeting the nutritional needs of the animals.

In general, ruminant herbivores have a daily diet intake of 1.5 - 4.0% body mass (BM), with larger species consuming food at a smaller percentage of BM than medium or small species. The amount of herbivore pellets to feed is based largely on the quality of hay fed, and the pellets are intended to correct the nutrient imbalances or deficits that might occur on a diet of only hay. Regular analysis of the nutrient content of your hay is highly recommended. It may be necessary to make adjustments in your current feeding regimens in order to deliver the appropriate dose of MGA via the new herbivore products. Current recommendations from zoo nutritionists suggest that medium to large size ruminant herbivores should receive 30-40% of the diet (by weight, as fed basis) as a nutritionally complete herbivore pellet and 60-70% of the diet (by weight, as fed basis) as hay. The type of hay(s) used (e.g., legume or grass hay, species of hay) in the diet is dependent on the nutrient content of the hay, the species being fed and hay types available in your area.

## Latency to effectiveness

Although individuals vary, threshold levels of the hormone should be reached in the blood within 1 to 3 days of starting this product. However, pre-ovulatory follicles are difficult to suppress, so, if cycle stage is not known, extra time must be allowed. Therefore, separation or alternative contraception should be used for 1-2 weeks after treatment begins.

### Signs of estrus during treatment

Synthetic progestins may achieve contraception by blocking ovulation, causing thickening of cervical mucus, slowing ovum transport, and/or interfering with fertilization or implantation. However, follicle growth may continue and sometimes be accompanied by estrogen production sufficient to cause estrous behavior. Ovulation may occur even though pregnancy does not ensue. Higher progestin doses may be preferred so that estrous behavior is prevented, but may not be effective in completely suppressing follicle growth and all estrogen production.

### **Duration of efficacy and reversibility**

Duration of efficacy may not be much more than 1 day, so the product must be administered daily. Following cessation of treatment, rapid clearance can result in ovulation within a few days, but actual latency to conception will vary by individual.

### Use during pregnancy

Progestins are not recommended in late pregnancy because of the possibility of prolonged gestation, although the effect may depend on species and dose.

## Use during lactation

Progestins are sometimes prescribed for lactating women and are considered generally safe for nursing infants.

## Use in pre-pubertal animals

Lack of data on pre-pubertal treatment and potential long-term effects on fertility contraindicates recommending contraception before puberty. Future reproduction was not affected in calves of domestic cows on MGA-treated feed, but no published studies of pre-pubertal treatment with MGA or other progestins have been conducted with other species, so possible long-term effects on fertility are not known.

#### Precautions

Progestins may cause weight gain in all species. Possible deleterious effects on uterine and mammary tissues vary greatly by species; see cautions for each taxon.

Antler abnormalities such as malformations, full shedding of velvet, and occasional aberrant sheeting or breaking of full antlers, have been seen in males of some cervid species (Raphael et al., 2003).

#### **Consideration for seasonal breeders**

Treatment should begin at least 1 month before the anticipated onset of the breeding season.

### **Reporting Requirements**

All institutions using MGA feed must submit a bi-annual MGA Feed Survey to the AZA Reproductive Management Center. Any adverse effects must be reported in writing to the AZA Reproductive Management Center. The product will no longer be sold to any institution that fails to submit the biannual survey. In addition, all institutions are asked to contribute contraception information for their animals to the AZA Reproductive Management Center's Contraception Database (<u>https://www.zoocontraceptiondata.org</u>). It is essential that accurate records of doses and treatment intervals be maintained, and results reported, to contribute to dosage development.

## For questions about the RMC Contraception Database, contact:

Ashley Franklin, Program Analyst AZA Reproductive Management Center One Government Drive Saint Louis, MO 63110 301-956-0171; fax: 314-646-5534 franklin@stlzoo.org

## References:

Raphael, B. L., P. Kalk, P. Thomas, P. P. Calle, J. G. Doherty, and R. A. Cook. (2003), Use of melengestrol acetate in feed for contraception in herds of captive ungulates. *Zoo Biology* 22(5), 455-463.