

Strengthening Farming FACTSHEET



Ministry of
Agriculture

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SITING AND MANAGEMENT OF DAIRY BARNES AND OPERATIONS

DISCLAIMER: This factsheet outlines recommendations that are designed to help dairy farms avoid costly changes that may be incurred as a result of negative impacts created by noise, dust, odour, flies, or rodents. Following the guidelines in this factsheet will not necessarily prevent producers from encountering difficulties with neighbours in all situations and does not absolve farm operations from obligations specified under various legislative acts and regulations. The Province of British Columbia does not guarantee the accuracy or completeness of the following recommendations and is not liable or responsible for decisions arising out of their use. The need to engage with local governments during the planning and design phases of building projects is therefore emphasized.

INTRODUCTION

Proper siting and management of dairy facilities play a crucial role in ensuring good neighbour relations both within farming areas and along urban-agricultural boundaries. The recommendations in this factsheet are designed to help producers avoid costly changes that may be required of dairy operations as a result of negative impacts on neighbours such as noise, dust, odour, flies, or rodents. In addition, background information is provided on the *Farm Practices Protection (Right to Farm) Act* (FPPA) and how the FPPA has been interpreted by the British Columbia Farm Industry Review Board (BCFIRB).

RECOMMENDATIONS

Planning and Siting Barns

1. Consult with planners, engineers, building contractors, industry peers, producer associations, and provincial government specialists on issues of siting and management before construction begins or before applying for a building permit in jurisdictions where a permit is required.
2. Future expansion is a critical consideration in determining building locations. Set buildings back as far as possible from neighbours' residences while at the same time allowing for the possibility of expansion. The doubling or tripling of herd sizes in the span of a decade or two is not unusual. Site planning should include layout scenarios that assume phased expansions in the recognition that setbacks from neighbours, watercourses and property lines will need to be followed for future growth or changes. The use of farmstead planning consultants and publications will be helpful in assessing the impacts of expansion.
3. Use the natural advantage that fences, berms and evergreen tree buffers offer on a site.



4. Consider climate data such as wind speeds and patterns when siting your barn. Anticipate the potential wind tunnel effects on neighbouring properties when considering building location and orientation.
5. Locate driveways and working areas near barns to minimize farm traffic noise impact on neighbours. A consideration of noise generated from total mixed ration feeding equipment, for example, may result in a strategic siting of bunkers and drivethrough barns.
6. Ensure that new infrastructure does not result in increased flooding on neighbouring properties.
7. New barn construction and renovation projects should incorporate netting barriers under truss systems and along naturally-ventilated sidewalls to exclude birds.
8. Independent of noise, dust and odour considerations, dairy structures near water bodies, watercourses and riparian areas must follow setback standards outlined in the Ministry of Agriculture factsheet entitled *Agricultural Building Setbacks from Watercourses in Farming Areas*.
9. Guidelines for minimum setbacks for principal and accessory farm buildings or structures in farming areas are highlighted in the Ministry of Agriculture publication entitled *Guide for Bylaw Development in Farming Areas*. These setbacks apply primarily to requirements along exterior, front, interior, rear and edge lot lines near both developed and undeveloped urban areas. Noise, dust and odour concerns will typically result in building setbacks significantly greater than those specified as minimums in this guide and in local government bylaws.

A producer's choice for a building site based only upon criteria such as topography, drainage or convenient access may change when impact on neighbours is considered. Longer driveways and increased costs associated with bringing in electrical services or more structural fill for improved drainage may be less costly in the long run than dealing with conflict and the legal implications of neighbourhood complaints. Development that considers the interests of both neighbours and farmer will result in plans that can be beneficial to all.

General Management and Aesthetic Considerations



Farmyards should be kept neat. Aesthetics play a key role in neighbours' impressions of a farm. Well-kept premises indicate that the operation is well-managed.

1. Dairy producers are encouraged to complete an Environmental Farm Plan, a voluntary program that offers funding to implement practices and construct facilities that improve environmental sustainability. It is advisable as well to have farms undergo various on-farm food safety program assessments to demonstrate best management practices.
2. Implement integrated pest management programs to address pests such as rodents, flies and birds. Work with industry associations and qualified technical professionals to ensure compliance with industry standards and pesticide storage.



3. Communicate to neighbours about your implementation of best management practices and be open to neighbours' suggestions regarding practices that could be considered to benefit all.
4. Make manure management an integral part of planning your new operation or expansion.
5. Follow provincial guidelines and waste management regulations when moving and composting manure. Develop and implement a nutrient management plan for the dairy manure and other wastes produced from your farm.
6. Consider alerting your neighbours to activities that may be out of the ordinary. Notification about the duration and particulars of commonly-practiced operations such as manure spreading, for example, may also be advisable. The willingness to communicate this information demonstrates neighbourly respect.
7. Avoid depositing manure and tracking mud onto roads whenever possible. If traffic requirements during seeding, harvesting and manure spreading activities result in unavoidable dirtying of public roads, efforts should be made to remove excess debris or mud by washing or scraping the road surface after operations are completed. If conditions are expected to be wet during such activities, caution signs should be posted. The consideration of umbilical systems to spread manure may reduce the need to use public roads.
8. Turn off yard lights not needed for safety or security, particularly when they impact neighbours.
9. Remove cattle and calf mortalities from the barn soon after expiration and ensure that dead stock service providers are contacted for same-day collection if such services exist in your area. Dead animals should be temporarily located in areas not readily visible to the public. If applicable, compost mortalities in a timely fashion to minimize pre-processing odours. Compost the carcasses of cows or calves using properly-constructed bins, windrows, and piles and in locations that will be out of the sight of road traffic, neighbours and passersby. See the Water Quality section below for guidelines associated with on-farm burial.

NUISANCE IMPACTS

Industry groups such as the BC Milk Producers Association and locally-based dairy organizations are advised to encourage members to be considerate of their neighbours when planning new facilities or expansions and while conducting the business of farming generally. Proper planning can reduce the effects of noise, dust, odour and other nuisances.

Noise Reduction

1. Use existing site features such as vegetation, buildings, wind direction, and distance to minimize noise.
2. Buildings and infrastructure should be strategically sited to avoid impacts from stationary and mobile noise-generating equipment such as electrical generators, vacuum pumps, feed mills, tower silo blowers, irrigation pumps and the like.
3. Standby power generators should be tested regularly for performance and reliability at chosen times not likely to annoy neighbours.
4. The use of bird scaring devices such as cannons and screechers should be avoided as much as possible by incorporating netting within barns, commodity sheds and other feed storage facilities to minimize roosting areas. Areas of spilled grains and other feeds should be cleaned up to minimize bird attraction.



- Where possible, perform forage and grain mixing operations at times least likely to bother neighbours or in a location where noise impacts are minimized.
- Avoid unnecessary idling of engines and headlight use at night. It is recognized, however, that baling and trucking operations must occasionally be done during nighttime hours to avoid crop damage and excessive leaf loss caused by dry weather conditions.
- Locate driveways as far as possible from neighbouring residences to reduce the impacts of truck and tractor traffic noise. Gravel roadways should be graded regularly to minimize clanging noises created by bouncing equipment.

Dust Prevention



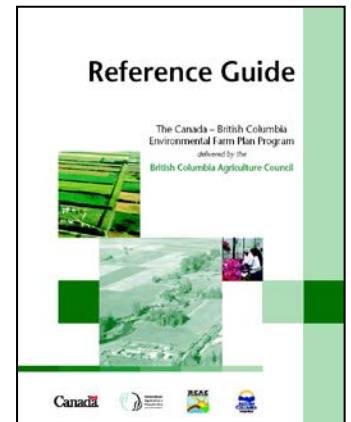
- For livestock buildings featuring mechanical ventilation, exhaust fans should be placed on the side of the building away from neighbouring property lines wherever possible. Use grasses, vegetation, hedges, and other nearby buffering agents to minimize potential dust and odours.
- In situations where dust generated from on-farm feed mills or from farm traffic using long driveways located alongside residences is an issue, it may be helpful to establish and maintain hedges for dust interception. Hedges between buildings or roads that generate dust near residences should be within 15 meters of the barn, reach a finished height of at least 6 meters, and consist of a double row of mixed deciduous/coniferous planting with foliage from base to crown. The crown density should be 50% to 75%. Preconstruction planning for new buildings and equipment that have the potential to create dust should recognize that they are best situated as far away as possible from neighbours.
- Locate driveways as far as possible from residences to minimize the movement of dust onto neighbouring properties. The spraying of gravel or dirt roadways near neighbours with water or calcium chloride may be advisable in certain conditions.

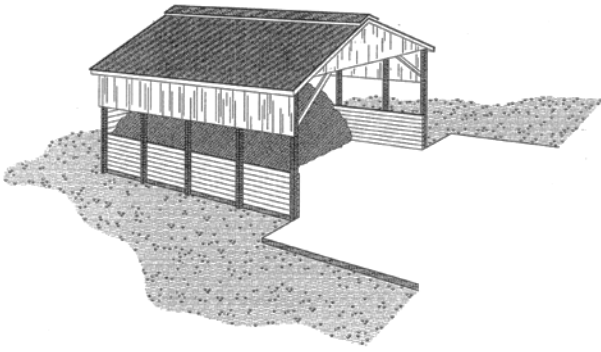
Odour Prevention



Follow waste management practices in accordance with the *Code of Agricultural Practice for Waste Management* and as outlined in the *Environmental Farm Plan Reference Guide*.

- Locate manure storage facilities out of view of neighbours where possible. Consideration of prevailing wind directions at times of the year when odour concerns from storages may be a problem may result in an alternative chosen location during siting and construction planning. See the Protection of Water Quality section below for environmentally-related setbacks specified by the Agricultural Waste Control Regulation.





2. Construct manure storages with surface area to volume ratios as low as possible to minimize surface exposure to the environment. Maintaining recommended distances from the bottom of storages to groundwater level, however, is a first consideration. Incorporation of organic or synthetic covers, roofs or other enclosures may be advantageous in reducing odours and maximizing storage duration.
3. Avoid the piling of solid manure near neighbours and close to wells.
4. Apply manure when most nearby residents are working or are away from home whenever possible. Avoid spreading manure on weekends and during mealtimes.
5. Avoid spreading manure if temperature inversion conditions are prevalent.
6. Notifying neighbours can be helpful prior to spreading operations so that they are prepared and understand why strong odours may occur.

7. Immediate incorporation of liquid manure after spreading is recommended for bare land application. The use of low-trajectory splash plates on vacuum tankers, umbilical systems, disk or sleigh-foot applicators, and direct injection equipment, especially near urban/rural edges, is helpful in reducing odour levels caused by aerosols and in maximizing nutrient retention for crop growth.

8. The use of travelling irrigation guns for manure application is strongly discouraged and may be considered an appropriate sporadic practice when dairy farms are located in remote areas and in situations where there are minimal drift and odour impacts on neighbours.



9. If odours are prevalent as a result of using dairy flushing systems, the use of aeration equipment in associated storage lagoons for separated liquids should be considered.

10. Effluent from tower or horizontal silo structures should be managed to minimize the generation of odours. In most cases, this can best be accomplished by ensuring that silage juices are transferred regularly to manure storage facilities.

11. Odours generated from dead stock should be addressed by temporary storage of carcasses in suitable containers or under organic covering materials prior to collection by dead stock service providers, permanent burial, or on-farm composting.

12. For farms considering the importation of off-site green and organic waste for processing operations such as anaerobic digestion, siting of storage facilities and equipment should be an essential part of planning to minimize noise and odour potential. Nutrient management plans should be incorporated into the development and implementation of such technologies.

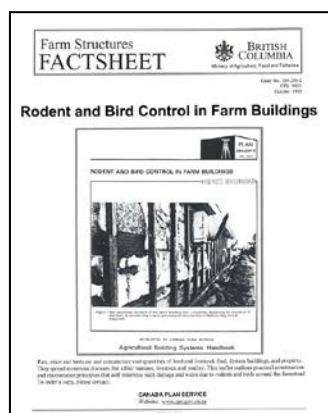
Fly Prevention



1. Maintain farm premises in an overall state of cleanliness. Regular removal of by-products such as small amounts of dry manure, spilled grain or silage that have become moist in outdoor areas will help minimize environments that encourage fly populations and attract birds.
2. Remove moisture sources around dairy buildings that contribute to fly breeding problems, such as poorly drained areas, high water tables around barn foundations, and leaking roof drainage systems. Slope grades away from the foundation walls to avoid standing water during and after heavy rains. Install roof gutters and down pipes to prevent standing water from collecting around or seeping into buildings and manure storages.
3. Fly breeding problems on dairy farms are most prevalent around calf-rearing areas. Hutches and pens should be kept dry and clean as part of regular farm maintenance practices.
4. Manage buildings with care to avoid fly breeding problems. This is particularly important where high rainfall, clay soils, and poor drainage conditions are prevalent, and in situations where barns may have been poorly designed with inadequate ventilation to control moisture content in the interior air space and in the manure. Regular removal of manure packs may help reduce fly populations as will the incorporation of improved or additional ventilation, especially in older buildings.
5. Monitor waterers around dry manure packs for leakage. Repair or replace leaky waterers immediately.
6. If available, use Integrated Pest Management programs to keep fly populations as low as possible. Pesticide use and the implementation of parasitoid programs can be effective in realizing fly control. Monitor fly populations weekly to anticipate outbreaks and to incorporate preemptive action.



Rodent Prevention



1. Maintain farm premises in a general state of cleanliness so that areas where rodents are likely to be attracted are minimized.
2. Where possible, use concrete floors to restrict rodent access to buildings and use construction techniques that prevent rodents from entering insulated wall systems.
3. Keep home and farm yards free of debris, long grass, weeds, rotting food scraps and other materials that create conditions which encourage rodents. Clean up feeder waste, secure pet food and other food materials, manage compost in properly-built bins, and ensure adequate bait control is in place in open areas where windrow composting, for example, is practiced.

Protection of Water Quality

4. Clean up exposed or spilled feed immediately. Install rodent baits and traps throughout the dairy premises and maintain them in operational condition. Rodent baits are particularly effective in reducing rodent populations.
5. Keep on-farm feed mill areas clean of feed and feed input materials.
6. Monitor the condition of plastic coverings on bunker silos and silage bags regularly to ensure that rodents are restricted from accessing ensiled feed sources. Remove spoiled feed and repair coverings in areas where enclosures and cover integrity have been compromised. The regular removal of silage along bunker silo face fronts and along wall edges is essential in keeping rodent populations to a minimum.

The *Code of Agricultural Practice for Waste Management*, which forms part of the Agricultural Waste Control Regulation under the Environmental Management Act, describes practices for using, storing, and managing agricultural waste that will result in such waste being handled in an environmentally sound manner. The Code specifies various waste handling practices and required setbacks for waste storages that pose a potential threat to surface and ground water sources. Some of these are summarized below.



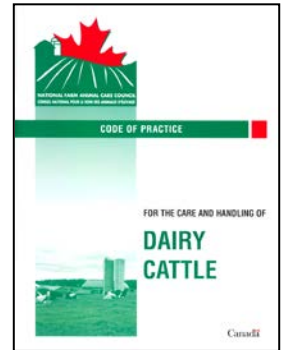
1. A storage facility must be located at least 15 metres from any watercourse and 30 metres from any source of water used for domestic purposes.
2. Solid agricultural waste may be stored on a field for two weeks or less if the waste is used within two weeks and is stored in a manner that prevents pollution.
3. Solid agricultural waste may be stored on a field for more than two weeks if the waste is stored for no longer than nine months, is located at least 30 metres from any watercourse or any source of water used for domestic purposes, and is stored in a manner that prevents pollution.
4. Agricultural wastes must not be applied on frozen land, in diverting winds, on areas having standing water, on saturated soils, or at rates exceeding crop requirements if such practices result in runoff or escape of waste causing pollution of a watercourse or groundwater or if such waste goes beyond the farm boundary.
5. Similar restrictions on setbacks for water sources as noted in Item 1 above apply to on-farm composting sites that handle manure and mortalities, burial locations for mortalities, wood waste storage areas, and seasonal and confined feeding areas. The Code should be consulted for specifics associated with various farming practices.



The Agricultural Waste Control Regulation (BC Regulation 131/92) can be accessed at the B.C. Laws website.

Animal Care Considerations and Codes of Practice

The public is increasingly aware of the need to conduct husbandry practices that take into account the welfare of animals. When farm animals are visible to the public, producers are more vulnerable to certain practices being questioned, whether founded or not. The reputation of the dairy industry is enhanced by producers constantly striving to provide the utmost care for animals. Various publications outlining the basic needs of animals are available and referenced below. The national *Code of Practice for the Care and Handling of Dairy Cattle* outlines recommended best management practices on a variety of subjects including:



- accommodation, housing and handling facilities
- feed and water
- health and welfare management
- husbandry practices
- transportation
- euthanasia



FARM PRACTICES PROTECTION (RIGHT TO FARM) ACT

Organizations such as the BC Farm Animal Care Council and the BC Society for the Prevention of Cruelty to Animals (BC SPCA) can offer valuable advice. The BC SPCA derives its powers to investigate and take action in instances of animal cruelty from the *Prevention of Cruelty to Animals Act*. Helpful websites on the subject of animal care are noted in the References section of this document.

The *Farm Practices Protection (Right to Farm) Act*, or FPPA, was enacted in 1996 to protect farmers from nuisance actions brought by individuals or local governments, provided farmers follow “normal farm practices”. The FPPA applies to land in the Agricultural Land Reserve (ALR), to land specifically zoned for agriculture, and in licensed aquaculture areas. The FPPA also allows neighbours to file a complaint with BCFIRB where they believe a farmer is acting contrary to normal farm practice and adversely affecting them due to odour, noise, dust or another disturbance. Both elements of the FPPA are intended to promote normal farm practice, making the FPPA a key component of the province’s Strengthening Farming Program.



The protection given to farmers by the FPPA recognizes the vital role farming plays in British Columbia's future and its direct and indirect economic and social benefits to communities. The FPPA complaint process, and the requirements for normal farm practice, also recognize that farmers have a responsibility to apply due diligence in ensuring that dust, odour and noise levels are within the range of what is considered to be normal farm practice.

To obtain the protection of the FPPA by way of a nuisance or bylaw enforcement action, farming operations must also be in compliance with the *Health Act*, the *Integrated Pest Management Act*, the *Environmental Management Act*, or any land use regulation.

Section 1 of the FPPA provides the basic definition of a "normal farm practice" as a *practice that is conducted by a farm business in a manner consistent with*

(a) *proper and accepted customs and standards as established and followed by similar farm businesses under similar circumstances, and*

(b) *any standards prescribed by the Lieutenant Governor in Council,*

and includes a practice that makes use of innovative technology in a manner consistent with proper advanced farm management practices and with any standards prescribed under paragraph (b).

While the FPPA places an emphasis on farming practices that are consistent with proper and accepted customs and standards, it does not ignore the impact of certain practices on neighbours. The reference in the FPPA to "similar farm businesses under similar circumstances" requires an examination of the specific circumstances and location of the operation. The Act does not assume that because a farm practice is considered "normal" in one context, it will necessarily be "proper and accepted" in all situations.

BRITISH COLUMBIA FARM INDUSTRY REVIEW BOARD

Under the *Farm Practices Protection (Right to Farm) Act*, the British Columbia Farm Industry Review Board (BCFIRB) hears complaints from persons who are aggrieved by practices arising from farm operations. The Board may also study and report generally on farm practices. A person who is aggrieved by odour, noise, dust or other disturbances resulting from an activity conducted as part of a farm business can apply for a determination from the BCFIRB on whether a disturbance results from a normal farming practice. If the answer is "yes", the complaint is dismissed. If the answer is "no", BCFIRB may order the farmer to cease or modify the practice to be consistent with normal farm practice.

Farm Industry Review Board Decisions and Lessons

In reaching decisions, the BCFIRB compares farm practices on the farm in question to other operations in similar circumstances. BCFIRB also considers factors such as the number and proximity of the neighbours, geographical features, types of farming in the area, the size and type of operation that is the subject of complaint, the ongoing nature of the complaint, the magnitude of the disturbance, and the impact of the practices on neighbours' ability to conduct day-to-day activities. Consideration of neighbours is part of "normal farming practice".

In many cases, proper planning and siting of new operations and good management practices will prevent very costly changes required as a result of a farm practices complaint. Various siting and management factors are important in reducing the impact of dairy operations on neighbours. BCFIRB has ruled that part of normal farm

practice is the consideration of one's neighbours when planning and managing a dairy operation.

Minimum adherence to statutory local government setbacks may not necessarily constitute due diligence in the choice of a barn location. The scale of the farm operation, design features of the barn, and prevailing winds can make a marked difference to a neighbour's exposure. Where barns are close to neighbours, farm management practices must go beyond what would be acceptable with larger setbacks. Practices that produce intense odours, for example, may be acceptable where human population densities are very low, but not reasonable in situations where high numbers of neighbours live nearby. Effective land use and site planning by local governments and by farmers are therefore crucial.

Past rulings by BCFIRB have ordered producers to modify farm operations, such as incorporating alternative manure handling systems or creating buffering features. It is in the interest of all producers to avoid the often costly consequences of inadequate site planning or poor management. Past decisions for a variety of livestock and poultry commodities are noted on the BCFIRB website as noted in the Reference section.

Farm operations do not automatically gain protection under the FPPA if they can be shown to follow the recommendations noted above, nor do they automatically lose protection if they are not following these recommendations. BCFIRB's task in a complaint is not to inquire into simply whether the farm practice is "proper" in an abstract sense, but also whether it is consistent with proper and accepted customs as established and followed by similar farm businesses under similar circumstances. The inquiry is both fact-specific and site-specific. The same practice may qualify as a normal farm practice in one situation but not in another where the circumstances are different.

CONCLUSION

Producers entering the dairy business or expanding existing production operations can benefit from appropriate siting and good management plans. It is advisable to call on third parties to assist in making an objective or non-biased decision on site location. Building setbacks and orientation should take into account the impact of an intensive farm on neighbours.



Producers have a role to play in ensuring that they stay abreast of technology and continue to improve their farm management practices. Guidance on proactively minimizing dust, odour, noise, rodents, and flies are described in this document.

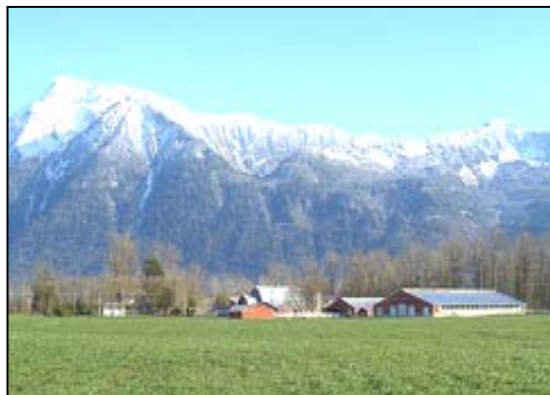
Further detailed technical knowledge on controlling these and other nuisances from dairy farms are in publications available through BCMAL. Well-thought-out siting and management practices will go a long way to assuring that relationships between a dairy producer and neighbours remain cordial.

Broad outlines for normal practice definition and context are available for a variety of commodities and farming activities in the *Farm Practices in B.C. Reference Guide* and are available online.

REFERENCES AND WEBSITES

Other references and websites of interest include:

1. *Agricultural Building Setbacks from Watercourses in Farming Areas*, BC Ministry of Agriculture factsheet.
2. *Canada – British Columbia Environmental Farm Plan: Reference Guide*, BC Agriculture Council, BC Ministry of Agriculture, Food and Fisheries, Agriculture and Agri-Food Canada.
3. *Canada – British Columbia Environmental Farm Plan: Planning Workbook*, BC Agriculture Council, BC Ministry of Agriculture, Food and Fisheries, Agriculture and Agri-Food Canada.
4. *Canadian Farm Buildings Handbook*, Agriculture Canada,.
5. *Code of Practice for the Care and Handling of Dairy Cattle*, Dairy Farmers of Canada and National Farm Animal Care Council.
6. *Farmstead Planning Handbook: Guidelines for Planning and Expanding Agricultural Facilities and Operations*, Midwest Plan Service, Iowa State University, 2005.
7. *Farm Practices in BC Reference Guide*, BC Ministry of Agriculture.
8. *Guide for Bylaw Development in Farming Areas*, BC Ministry of Agriculture.
9. *National Farm Building Code of Canada 1995*, Canadian Commission on Building and Fire Codes, National Research Council of Canada.
10. BC Ministry of Agriculture, Strengthening Farming website
11. BC Farm Industry Review Board website.
12. BC Milk Producers Association website.
13. BC legislation and regulation website – BC Laws.
14. National Farm Animal Care Council website.
15. BC Farm Animal Care Council website.
16. Society for the Prevention of Cruelty to Animals website.



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