

Recommended code of practice for  
the care and handling of farm animals: Pigs

# Addendum

## Early Weaned Pigs



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## **Addendum**

### Early Weaned Pigs

*Coordinated by*

Canadian Agri-Food Research Council (CARC)  
Canadian Pork Council (CPC)

*Review Committee*

Participants are listed in Appendix 1

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Photo Courtesy of Brenda Sawatzky, University of Manitoba



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# Acknowledgments

*The Canadian Agri-Food Research Council gratefully acknowledges the many individuals and organizations who contributed their valuable time, views and expertise to the development of this Code of Practice Addendum. The development of this Addendum was made possible only through teamwork and cooperation at the national level.*

*This document, which deals with early weaned piglets, is an addendum to the Recommended Code of Practice for Care and Handling of Farm Animals: Pigs. Every effort was made to maintain the general style of the Codes without getting into details of actual management strategies. Included at the end of the text is a list of useful reference literature.*

*Sincere thanks to Dr. Suzanne Robert for her summary of health issues and supporting documents, to Drs. Harold Gonyou and Dan Weary for their submission summarizing behavioural implications of early weaning and to Dr. Terry Whiting for his paper summarizing other aspects of health and general issues with SEW. Finally a sincere thank you to Dr. Laurie Connor for the leadership she provided as Chairperson of the development committee.*

# Preface

The Codes of Practice are nationally developed guidelines for the care and handling of the different species of farm animals. The Codes contain recommendations for housing and management practices for farm animals as well as transportation and processing.

The Codes are voluntary and are intended as an educational tool in the promotion of sound management and welfare practices. The Codes contain recommendations to assist farmers and others in the agriculture and food sector to compare and improve their own management practices.

In 1980, the Canadian Federation of Humane Societies began coordinating the process of development of Codes of Practice for all livestock species with the introduction of a ***Recommended Code of Practice for Handling of Poultry from Hatchery to Slaughterhouse***. The federal Minister of Agriculture and Agri-Food Canada (AAFC) provided financial support for the undertaking at that time.

All Codes of Practice are presently developed by a review committee with representatives from farm groups, animal welfare groups, veterinarians, animal scientists, federal and provincial governments, related agricultural sectors and interested individuals.

In 1993, Agriculture and Agri-Food Canada asked the Canadian Agri-Food Research Council (CARC) and its Canada Committee on Animals and Expert Committee on Farm Animal Welfare and Behaviour to take the lead in cooperation with the Canadian Federation of Humane Societies in updating existing Codes and developing new Codes. CARC officially agreed to take on this responsibility in February 1995 upon confirmation of funding from Agriculture and Agri-Food Canada.

In 1996, CARC with the support of the provincial governments began producing four page factsheets in both English and French for such uses as teaching agriculture in the classroom, agricultural fairs and exhibitions.

Codes developed to date:

Species	Original	Revision
Poultry	1983	1989
Pigs	1984	1993
Sew addendum	2003	–
Veal calves	1988	1998
Ranched mink	1988	–
Ranched fox	1989	–
Dairy cattle	1990	–
Beef cattle	1991	–
Sheep	1995	–
Farmed deer	1996	–
Horses	1998	–
Transportation	2001	–
Bison	2001	-

Further information on the process of Code development and revision can be obtained from the Canadian Agri-Food Research Council (CARC), Heritage House, Building 60, Central Experimental Farm, Ottawa, Ontario K1A 0C6. Requests for copies of the Codes can be addressed to the Canadian Pork Council and/or specific provincial organizations.

The CARC Home Page is [www.carc-crac.ca](http://www.carc-crac.ca) for further information.

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# READERS' COMMENTS AND SUGGESTIONS

The Canadian Agri-Food Research Council would like to receive your comments and suggestions on the Recommended Code of Practice for the Care and Handling of Farm Animals Pigs Addendum - Early Weaned Pigs. Please send the completed questionnaire to the Canadian Agri-Food Research Council at Building 60, Central Experimental Farm, Ottawa, Ontario K1A 0C6 or fax to (613) 234-2330. Feedback will be considered in future editions.

1. My work involves:

- a) commercial transportation of early weaned pigs
- b) raising early weaned pigs
- c) other (please specify)

2. The pig code - early weaned pigs addendum is relevant or useful in my work:

- a) highly
- b) to some degree
- c) not

Additional comments:

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3. The organization of the addendum contents:

- a) is appropriate
- b) needs improvement (please specify)

4. The topics contained in the addendum cover all appropriate aspects of early weaned care and handling:

- a) yes
- b) no (please specify)

5. The recommendations are presented:
- a) in an unclear manner or with inadequate detail
  - b) clearly and in adequate detail
  - c) in excessive detail

Additional comments:

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6. I suggest the following changes to improve the pig code addendum - early weaned pigs  
(use additional sheets if necessary to comment):

# Section 1 " Introduction

At the time of the Code<sup>1</sup> preparation in 1992/1993, weaning at 3 to 4 weeks of age was convention. Weaning before 3 weeks of age was not recommended “*because of the extremely high level of management and specialized facilities required*” (p22). However, during the interim, the adoption of early weaning strategies has grown dramatically. This has largely resulted from the demonstrated health benefits, and thus welfare, as well as growth performance advantages for early weaned piglets in many production systems. But the practice is not without some shortcomings and potential welfare risks. This addendum was prepared in order to highlight the important practices necessary to ensure well-being of early weaned piglets. In preparing this addendum it also became apparent that there are a number of areas where we lack the knowledge and (or) scientific evidence to make firm recommendations. These will be identified to encourage continued efforts upon which subsequent recommendations can be made with confidence.

## 1.1 Terminology

Although free-ranging sows gradually wean their litters between two and five months of age, management strategies to safely wean piglets at 28 days or less have been in practice for many years. Therefore, early weaning (EW) in North America has come to mean weaning the piglets before 21 to 24 days of age.

Current practices of segregated early weaning (SEW) and medicated early weaning (MEW) are management strategies designed to optimize the health and growth performance of the piglets. These technologies originally had piglets being weaned at 7 to 14 days of age. However, weaning at less than 14 days of age requires such high levels of animal care and specialized management that unless there is a specific health problem being addressed, most farm protocols in Canada now have EW piglets weaned between 14 and 20 days of age, with an average being around 17 days of age. The newly weaned piglets are moved to a site isolated (segregated) from the sows and other animals. This has also lead to the term isoweane (ISO).

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<sup>1</sup> Recommended Code of Practice for the Care and Handling of Farm Animals - Pigs

The principle of the SEW/ISO procedure involves removing the piglets from the sow while they still have passive immunity from the sow's colostrum and thus before they can succumb to the potential pathogens in the sow-farrowing room environment. Table 1 depicts the approximate ages by which piglets may have greatly lowered maternal immunity to specific pathogens. Weaning and isolation into a clean environment before these ages can eliminate the occurrence of disease associated with these microorganisms. Concurrently, with appropriate nutrition and strict biosecurity, SEW/ISO piglets remain healthy and can show improved weight gains and feed efficiency.

Table 1. **Examples of approximate weaning age corresponding with loss of maternal immunity for specific pathogens of production concern.** As the result of many factors the exact age at loss of maternal immunity varies between herds, litters and even individual piglets within litters.

<u>Pathogen/disease</u>	<u>Weaning Age, days</u>
<i>Haemophilus parasuis</i> HPS	< 14
<i>Streptococcus suis</i>	< 7
<i>Porcine Reproductive and Respiratory Syndrome (PRRS)</i>	< 10
<i>Pasturella – Atrophic Rhinitis</i>	< 10
<i>Mycoplasma Hypopneumoniae</i>	< 10
<i>Salmonella cholerasuis</i>	< 12
<i>Swine influenza virus</i>	< 14
<i>Pseudorabies virus</i>	< 21
<i>Actinobacillus pleuropneumonia</i>	< 21
<i>Transmissible gastroenteritis (TGE)</i>	< 21
<i>Swine dysentery</i>	< 21

(Adapted from Maxwell & Sohn, 1999)

The piglet's ability to defend itself against disease pathogens is normally lowest between the second and fourth weeks of life. The passive immunity from maternal immunoglobulins declines after about 10 days of age and the piglet's ability to produce its own immunoglobulins in response to a disease challenge gradually increases during the subsequent two weeks. Strict attention to cleanliness and sanitation combined with management strategies that ensure the piglets are not exposed to disease organisms, has benefits not only for piglet health and well-being, but also for growth performance and economic efficiency. Therefore, weaning the piglets at less than 3 weeks of age reduces the risk of vertical disease transfer from the dam. Segregating the newly weaned piglets into groups by age and site further decreases the likelihood of disease transfer.

When sows are of high health status and the need to break a specific disease cycle is not present there is generally little advantage in weaning at less than 3 weeks of age. In general, weaning piglets at less than 14 days of age or a weight less than 4.5 kg should be avoided. Below 10 days of age and weights less than 4.5 kg weanlings require extremely high levels of management attention and environmental control. Much research has shown that as weaning age decreases there is increasing piglet activity, vocalization, and oral behaviour (ie. chewing, sucking and nosing of penmates), all indicating that weaning is more distressing for the younger piglets.

SEW/ISO production, even in conjunction with medication, will not eliminate all pathogens. Therefore, a herd-specific weaning age should be determined depending on the pathogen control or elimination objectives for that herd (see Table 1). Health management decisions should be made in consultation with the herd veterinarian as part of an overall herd evaluation rather than focusing on individual pathogens.

This document is providing recommendations for EW at 14 to 20 days of age. Management and care of piglets weaned at less than 14 days of age is highly specialized and not recommended for routine practice. The term EW for ‘early weaned/weaning’ is used generically for all early weaned piglets. References to specific strategies associated with early weaning such as segregation/isolation (SEW/ISO) will be identified where appropriate.

## **1.2 Pre-weaning Management**

Recommended care of sows and piglets destined for EW is basically the same as that in the Code for weaning at 21 days or later (see pages 20 and 21 of Code). All piglets must have access to colostrum within the first 12 hours of life as well as continuous access to a functional teat or an appropriate supplementary milk source. Emphasis should be placed on management strategies such as split-nursing<sup>1</sup> and early cross-fostering<sup>2</sup> (within 24 hours of birth) that maximize passive transfer of immunity. Where necessary, freshly thawed colostrum should be administered orally to weaker piglets and those at risk because of size or birth-order.

Cross-fostering of piglets older than 24-48 hours should be avoided as this can actually contribute to maintenance and transmission of specific diseases (eg. PRRS). Additionally, fostering of older lightweight piglets in an effort to increase weight prior to weaning can result in failed nursings, increased fighting and lower weight gains and is therefore counterproductive.

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<sup>1</sup> removal of the larger pigs in a litter from the dam for a short period within 24 hours after birth to allow the smaller piglets uninhibited access to the dam

<sup>2</sup> permanent removal of piglets from a large litter to residence in a smaller litter of similar age piglets

To avoid vertical pathogen transfer, never mix older and younger piglets together (back-fostering). Lightweight piglets would be better provided with a supplementary milk source or remain suckling their dam when the heavier piglets are removed (split-weaning) rather than being subjected to multiple fosterings.

Early identification of lightweight piglets and specific attention before weaning will decrease the risks for these piglets and associated management problems. Methods used to help lightweight piglets include: providing a supplementary milk source; forming a foster litter of light piglets onto a nurse sow; removal to a controlled environment area within the farrowing room and provision of extra milk and creep feed.

Where needed, vaccinations and medications required to avoid pathogen contamination should be restricted to defined periods such as birth, castration and weaning. This helps in overall monitoring and to minimize handling piglets.

It is commonly accepted that suckling piglets consume very little, if any, solid feed before about 2 - 3 weeks of age. However, it is recommended that a highly palatable creep feed or liquid supplement be provided as early as 7 days of age to suckling piglets designated for EW. Early consumption of these feeds can improve weight gains, especially for lighter weight piglets in large litters, and ease the transition to solid feed at weaning. Feeding fresh creep feed daily on a flat surface or dish may help increase the consumption of the feed. Feeding the same diet as used in the creep for the first week after weaning will also aid in the transition to solid feed.

### **1.3 Weaner Management**

#### ***Facilities and environment***

Piglets should be weaned into a clean, dry, well-heated, draft-free facility specifically designed to meet the EW piglets' needs. Feeders and water drinkers must be appropriate for the size and age of the pig. Fresh, high quality water must be readily available to the piglets. Generally, piglets should be heavier than 4.5 kg for EW. Lighter weight piglets require special care and attention and should be left suckling the sow or be placed in the appropriate environment where they can receive specialized attention.

Pen floor space allowance should consider the end weight of the piglets when they leave the nursery. Then, space allowance can follow those recommended in the current Code of Practice – Pigs (p12). That is, a 10 kg pig should have 0.16 m<sup>2</sup> (1.7ft<sup>2</sup>) and 20 kg pigs should have 0.26 m<sup>2</sup> (2.8 ft<sup>2</sup>) of floor space.

The temperature requirements for EW pigs are similar to those for similar weight piglets

identified in the Code (p 9). EW piglets tend to undergo a longer period of no or minimal feed ingestion than do piglets weaned at 21 – 28 days. The delay in establishing normal levels of feed intake is greater as the age of weaning decreases with 7 to 14 day old piglets taking 2 to 4 days to become established compared to 1 day for older weaned piglets. The lower feed consumption and digestion results in lower heat production. Combined with the energy expenditure of increased vocalization and activity, the EW piglet has an increased requirement for supplemental heat. Maintain temperatures for the first two weeks at 28 – 32°C (83 – 90°F). Thereafter, temperatures can be lowered about 2°C per week as long as the piglets are remaining healthy and comfortable. A supplemental heat source during the first week can provide comfort for any piglets with lower feed consumption. A solid floor area or mat will minimize chilling from drafts and is often an attractive lying area for the piglets. Zone heating, which can maintain higher floor contact temperatures with lower room air temperatures, may have benefits for maximizing piglet comfort and feed intake.

Feeding equipment and space must take into account the unique feeding behaviour of the young EW piglet. Initially, all pigs may want to eat at the same time as they would when nursing the sow. Feeder space to accommodate all pigs in the pen at one time must be available in the immediate post-weaning period while learning feeding behaviour. Nursery feeders should allow at least 15 cm (6 inches) of feeder space per pig. For single stage nurseries where pigs are kept to 31.8 kg (70 lbs), 25 cm (10 inches) per feeding space may be required. The feeder should be readily adjustable to minimize feed wastage. A feed agitator that can be easily manipulated by the piglets will help prevent lodging and maintain the free flow of feed.

Where special feed troughs are used during the first week, allow one space for every 1.5 to 2 piglets. Otherwise, feeding boards or trays can be used to help provide adequate space for group feeding during the first week after weaning. Feeding boards must be of easily cleaned material such as plastic to prevent disease problems. By the third or fourth day after weaning the piglets should be eating readily from the feeders and the feeding boards or troughs should be removed from the pen.

Water intake is critical for the newly weaned piglet. Water should be of high quality and readily available. Care must be taken that piglets can access the water easily. As two examples, unguarded center flow nipples as well as low lip cup waterers have proven successful. Check daily to ensure water is flowing and cups are clean.

The EW pig tends to be more vulnerable than older piglets to disease pathogens. Their weaning age corresponds to the time when passive maternal immune protection is waning and their own immune responses are not fully developed. Lowered nutrient intake and change in environment at weaning contribute to making the EW piglet susceptible to disease challenge. Moving piglets to a clean site removed from the sow herd and older pigs eliminates vertical transmission of

disease and is an essential component of SEW/ISO programs. Segregation by site and all-in-all-out (AIAO) movement of piglets are essential for successful SEW/ISO. These conditions promote the advanced post-weaning gut development and reduced pathogen load characteristic of properly managed SEW/ISO pigs. Operating an AIAO system by barn or site is easiest to maintain optimum health status. If AIAO by room is practiced, and multi-source piglets are mixed, scheduled temporary emptying and cleaning the whole nursery should be conducted.

Mixing of multi-source piglets is always a potential for disease transmission, even when from herds of known similar health status. Source weanlings only from known reputable suppliers with the highest health status. All piglets should be monitored closely during the first two weeks after weaning for any signs of ill health and symptoms treated appropriately. In high health herds where segregation at weaning is not necessary to break a disease cycle *per se*, isolation from the sow herd and older piglets is necessary to minimize the occurrence of pathogen transfer. Strict biosecurity measures must be maintained, including restrictions on the movement of stockpeople between facilities.

Because of the EW piglet's vulnerability to pathogens, signs of ill health must be treated promptly. It is recommended that a veterinarian-approved standard operating procedure be in place for identifying and quickly treating sick piglets. This will greatly increase the effectiveness of treatment and lower the likelihood of disease transmission throughout the whole group.

#### **1.4 Care of Weanlings**

Separating piglets from their dam is stressful. Conduct weaning with care. The piglets' responses to weaning tend to be stronger as the age of weaning decreases. Initially, piglets become more active, vocalize at a high rate, and spend more time chewing and belly-nosing their pen mates. During the first 3 days post-weaning, in particular, they consume less feed than needed for maintenance and tend to lose weight. They may also spend more time at the drinker than later weaned piglets. Frequent belly-nosing, sucking and chewing behaviour in EW piglets may cause lesions on recipient piglets. Some piglets may continue to perform this behaviour as grower pigs. But, aside from weaning at a later age, there are no current recommendations for decreasing or diverting these behaviours. Weanlings should be observed carefully and any lesions that may develop from these interactions should be treated.

Removing dividers between creep areas of adjacent pens in the farrowing room a few days to a week before weaning allows piglets from two litters to mix prior to weaning. This practice can ease the stress of weaning and regrouping. It tends to shorten the duration of fighting and decreases problems with aggression.

When piglets must be grouped with other litters in a nursery, mix piglets of the same size together and place in a clean warm environment. Piglets should be observed carefully and any lesions that may develop from their interactions should be treated in order to decrease the likelihood of exudative epidermitis (Greasy pig disease). Ensure any passageways or containers used for moving the piglets are clean and sanitized before use to minimize pathogen transfer.

To avoid the spread of infection among piglets, it is important in SEW/ISO systems that they be weaned within a narrow age range, ideally within 1-2 days. However, they should also have reached a minimum weight for that age (eg. 4.5 kg for 14 day old weanlings).

Light weight piglets for their age group can be mixed together but must receive the specialized care they require in an environment appropriate for their age and size. These piglets are as immunologically naïve as their larger cohorts of the same age and must be similarly protected from exposure to disease pathogens. The best situation for piglets weighing less than 4 kg would be to remain suckling the sow and (or) be provided with highly palatable feed or liquid replacement. However, back-fostering<sup>1</sup> must be avoided. This practice rarely benefits the fostered piglets that have to fight again for teat order, and it jeopardizes the health of the resident piglets.

EW piglets have very little body reserves and must get established on nursery feed as quickly as possible. The microscopic structure of the small intestine and the digestive enzyme profile of the piglet change dramatically at weaning. Feed components must be highly digestible and non-antigenic to the gut lining. Feed needs to be readily accessible, available frequently, be fresh and highly palatable. When piglets first enter the nursery group, feeding behaviour can be facilitated by offering feed several times a day in a trough or on a feeding board. In addition, fresh feed should always be available in the feeder. There are several techniques employed in the industry to entice piglets to consume sufficient feed. Whatever the method, diligent observation is essential to ensure normal feeding and drinking behaviour by all piglets. Offering a gruel of nursery feed and water has proven successful in encouraging initial feeding behaviour, especially in developmentally younger pigs.

If piglets have not started to eat by 36 to 60 hours after weaning they are in danger of starving. Piglets that are emaciated at 36 to 48 hours after weaning should be identified and individually encouraged to eat. For small numbers, hand feeding of moistened pellets can be successful. For larger numbers or very weak piglets, feeding a gruel by syringe can provide sufficient feed energy to prevent starvation while normal eating behaviour is being learned. All handling and procedures should be done gently and with patience.

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<sup>1</sup> movement of small pigs for age, into a younger litter for nutritional supplementation

## Section 2 " Transportation

Transportation of EW piglets is an essential component of SEW/ISO. Principles of safe transport are the same as for other young pigs. Whether transit is of short or long duration, the vehicle or container must be clean, disinfected, draft free and provide the correct temperature control and air quality for the newly weaned piglet. The addition of clean straw, shavings or other bedding material can provide extra insulation and comfort.

Handling of the newly weaned piglet must be conducted with care. By day 12 – 14 of age piglets have the agility and behaviour to allow herding and can be readily loaded onto a vehicle. Ensure minimal temperature stress as the piglets are moved onto the transporter. A group size of 50 should allow minimal assembling and unloading time for the group. Larger group sizes should be used only when the assembling and loading system is very efficient and well organized.

Transport conditions will have a large impact on the degree of stress the piglets experience and how readily they recover in the new nursery environment. Any negative affects of transport conditions will be aggravated by long transport times. Therefore, total time in transit should be kept to a minimum. Newly weaned piglets will not eat for the first 24 hours after weaning and movement to the new facility should be completed well within this time period. At the time of this writing, the experience has been that under proper conditions, transport of newly weaned piglets can be up to 24 hours without any adverse effects.

When long transit distances are planned, precautions must be taken to avoid delays which can jeopardize the well-being of the piglets. Ensure appropriate herd identification and health records are in place before transit begins. Loading densities must allow all piglets to lie comfortably without crowding. A rule of thumb is that when all piglets are standing, 25% of the floor space should be visible. Table 2 recommends stocking densities that have proven successful by transporters in western Canada. The optimum transport conditions and loading densities to ensure easy transition for EW piglets into the new facility require further research and clear definition.

Table 2. **Recommendations for safe minimum space allowance for transportation of weanlings based on extensive experience of successful transporters** (from Whiting and Brandt, 2002)

Weight kg (lb)	M <sup>2</sup>	Ft <sup>2</sup>
4.5 (10)	0.065	0.7
9.1 (20)	0.084	0.9
13.6 (30)	0.093	1.0
22.7 (50)	0.139	1.5
31.2 (70)	0.167	1.8

## Section 3 " Sow Care and Management

### 3.1 Pre-farrowing

The health status of the sow herd should be determined in consultation with a veterinarian before any pathogen control strategies, including site separation, are implemented. Sow herds of known and compatible health status should be maintained as the source for SEW systems co-mingling multi-source piglets. Sow vaccination programs must be strictly followed in order to boost sow colostrum antibody levels. Depending on the disease organism(s) targeted, vaccination should be given at the prescribed period pre-farrowing, for example at five and two weeks. Sow herd immune status should be part of a regular herd serology profile. If a high incidence of bacterial disease is being transferred from sows to suckling piglets a medication program may be advised which begins prior to farrowing.

### 3.2 Lactation

Success of EW programs is largely dependent on piglets within litters being of high birthweight and uniform high weaning weight. Sow feeding programs during gestation must promote good birthweights and provide the background necessary for good lactation performance without compromising sow body condition. Ensure all piglets ingest colostrum within 12 hours of birth. Weak or "tail-ender" piglets should be given fresh or freshly thawed colostrum by syringe or stomach tube. Early split-nursing can help maximize the passive transfer of immunity to piglets, thus decreasing the within - litter variation in immune status. Cross-fostering should be conducted within 48 hours of farrowing.

Split-weaning can benefit the sow as well as weanling performance. The lower demand from suckling piglets allows the sow to adjust more gradually to the metabolic changes of weaning

and can shorten the interval from weaning to readiness to rebreed. Fresh, clean water should be available at all times as it is essential for milk production and maximum sow feed intake. Avoid sow heat stress. Room temperatures for lactating sows should be 19 – 21°C to promote sow comfort and full feed intake.

### **3.3 Post-Weaning**

Sows must be handled with patience and care at weaning. Although few studies have dealt with the impact of EW on sow behaviour and welfare, it is likely that weaning earlier in lactation is more difficult for the sow. More research is required in this area. By two weeks of lactation, milk production is approaching its peak, the sow is on maximum feed intake and the rapidly growing piglets have well established suckling bouts. The uterus is not completely involuted from the pregnancy. After weaning, sows tend to vocalize at a much higher rate and become more active. Metabolically, they are still producing milk and care must be taken to provide sufficient nutrient intake during this time so that energy balance and subsequent rebreeding are not overly compromised. Feed and water should not be withheld as a method to decrease milk production at weaning.

Sufficient time must be allowed to observe and consider each sow individually every day. The period from weaning through pregnancy establishment is particularly critical and management strategies must allow adequate time for individual animal attention and care.

The sow's ability to maintain good body condition, produce uniformly heavy piglets at the desired age of weaning, rebreed within a reasonable time and produce a subsequently satisfactory litter is the result of a complex of genetics, animal age and management. Some genotypes may be able to respond more effectively than others to the requirements of an EW program without compromising their subsequent reproductive performance. Retrospective record analysis can help identify the lowest practical lactation length for the sow herd. The range of lactation lengths at weaning needs to be compatible with satisfactory reproductive performance as well as with the specific pathogen control or elimination requirements for the piglets. First and second litter sows usually require special attention as they are still growing and tend to lose proportionally more weight than older sows during lactation. Any sows showing a protracted interval to rebreeding following weaning may benefit from a delay in rebreeding to allow for build-up of body reserves and improved reproductive outcome with the next litter. Management strategies should allow for the space and attention such sows require.

# Section 4 " Conclusion

EW creates special challenges for the animals and requires high levels of management expertise. EW should be practiced only within the context of an approved herd health program.

- Weaning at less than 14 days of age or weights of less than 4.5 kg are recommended only if essential to eliminate specific pathogens as identified by a health professional. The younger the piglet, the greater the stress response to weaning and the more attention required to ensure good health, nutrient intake and well-being.
- Low weight for age piglets may be especially vulnerable and require the same or higher level of specialized care as those that qualify for SEW/ISO programs.
- Protocols for EW must include provision for careful handling, appropriate transport conditions, frequent observation, prompt identification and treatment of ill health, provision of highly palatable feed, adequate clean water, and the environment appropriate for the age and weights of the piglets.
- Sows as part of an EW program require equally specialized attention and management. Sufficient time per sow must be allowed for individual attention and assessment. Consideration must be given to recognizing any natural limitations of the sow herd to EW protocols.

Research efforts are still needed to improve our knowledge in several areas. These include:

- defining the optimum transport duration and environment for EW piglets;
- determining how to minimize the detrimental stress responses to EW;
- defining methods to optimize establishment of nutrient intake soon after weaning;
- strategies for managing low weight piglets;
- identifying any significant genetic differences in responses to and requirements for EW;
- identifying strategies to minimize any negative effects of EW on sows.

Adherence to strict health protocols, maintaining high levels of management expertise, supporting advancement of knowledge and understanding through research, and willingness to adopt new effective strategies will only serve to ensure highest standards of animal care and performance.

## Section 5 " Resource Literature

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# Appendix 1 " Review Committee

List of participants in the development of the Addendum to the Code of Practice for the Care and Handling of Farm Animals - Pigs to address the care and handling of early weaned pigs.

<b>Organization</b>	<b>Representative</b>
Agriculture and Agri-Food Canada	S. Robert, Ph.D. S.K. Ho, Ph.D.
Canadian Council on Animal Care	G. Griffin, Ph.D.
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Canadian Meat Council	L. Campbell
Canadian Pork Council	R. Douglas L. Friesen F. Possberg J. Preugschas C. Scovil
Canadian Society of Animal Science	R. Bergeron, Ph.D.
Canadian Swine Breeders Association	R. James
Canadian Veterinary Medical Association	C. Templeton, D.V.M.
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