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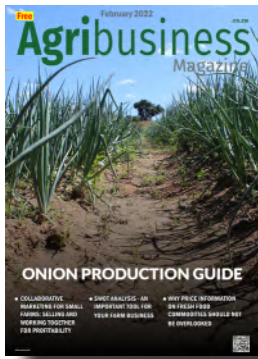
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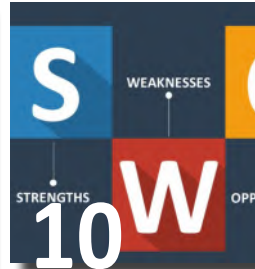
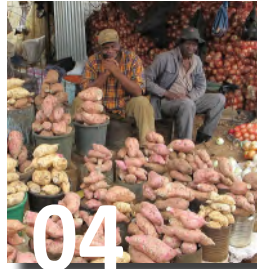
ONION PRODUCTION GUIDE

- **COLLABORATIVE MARKETING FOR SMALL FARMS: SELLING AND WORKING TOGETHER FOR PROFITABILITY**
- **SWOT ANALYSIS - AN IMPORTANT TOOL FOR YOUR FARM BUSINESS**
- **WHY PRICE INFORMATION ON FRESH FOOD COMMODITIES SHOULD NOT BE OVERLOOKED**





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Collaborative Marketing for Small Farms: Selling and Working Together for Profitability

Introduction

Collaborative marketing is a realistic solution for small- to mid-size farms that are seeking access to larger markets, but are unable to individually serve such accounts. In collaborative marketing, several like-minded producers join together formally to market and distribute farm products, but not necessarily under the governance or control of a cooperative.

The range of farm products that can be sold through a collaborative group is as diverse as the farms themselves: meats, vegetables, forest products, fruits, grains, flowers, nursery & greenhouse products, cheeses and other dairy products, and livestock. Collaborative marketing

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may influence many areas of your farm. By choosing to market jointly with other farms, you will adjust your planting intentions, harvesting and storage techniques, crop schedule, certifications, buyer relationships and many other farm office decisions. It is not a decision to be taken lightly. In fact, establishing some type of business collaboration may be one of the more complicated decisions you will make for your farm. The financial bottom line for family farms is profitability.

Collaborative marketing could reduce your marketing expenses, but it

might not make your farm profitable overall. Fortunately, there are ways for you to collaborate with other farms for trial periods to assess the economic strengths or weaknesses.

The opportunities opened up through multi-farm marketing need to be tempered with good agreements and procedures.

Generally, small farms should consider temporary, limited-scale collaborative projects before developing substantial business agreements. Such arrangements can be as simple as consignment sales, or as complex as a corporation dedicated to marketing and distribution.

Success factors in collaboration

Communication:

All producers in a collaborative group are known to each other. They discuss issues and opportunities regularly, openly, and honestly. Enhanced market opportunities: The farm marketing group should be providing access

to a new buyer or a larger-scale customer. Another opportunity would be to access a more profitable market channel, maintain a consistent product supply, reduce risk for a particular buyer, or promote a marketing advantage shared by several farms. Improved bottom line: The farm marketing collaboration demonstrates

its strength in economic terms, with reduced labour and advertising expenses.

Written terms and agreements:

The terms of the collaboration are spelled out in a written agreement, with limited legalese, clear terminology, and specific terms. The



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agreement should be thorough, and easily understood by all the collaborators.

Like-mindedness:

The essence of collaborative marketing is in having both shared goals and shared values, not just being located in the same town or county. Collaborating farms have to agree on the principles of their marketing strategy as well as how it is executed and how success is to be measured.

Creating a Collaborative Marketing Strategy

Define the who and why

Collaboration requires various individuals to work together. The first question to answer is exactly who is collaborating. The worksheet included at the end of this guide gives you a place to write down the names and roles of the participating farm owners. The “why” of collaboration can be trickier. Clearly defined business objectives are the key, since it is more than just physical proximity that would draw two or more farms to work as one in marketing. The rationale for collaboration should be clear, and how it is preferable by the collaborators compared to individual marketing. Some reasons for collaboration include:

- Reduce individual farm marketing expenses by dividing a single larger-scale marketing opportunity across multiple farms.
- Meet expectations of a new buyer and to reduce their risk, while reducing risk to a participating farm.
- Maintain product availability by dividing production across several farms.
- Maximize a marketing advantage shared by the participating farms

Define the what

A collaboration may only involve a select number of products from your farm, or only one product. The products to be marketed from your farm should be explicitly documented, along with quantities, grade, and units.

Examples:

Cabbage, three deliveries from mid-August to end of September, 1 kg minimum kg per head, 150 heads per delivery. Tomatoes, pale blossom end ripening stage, 12 boxes each week July 1 to September 30.

Define the when

Collaborative business ventures between farms often have a start date, but less attention is given to the end date. The end of a collaboration can be planned or the result of changed circumstances or disinterest from one of the parties. Most collaborations will experience disagreements, and when they do, a dispute resolution process, or a termination plan can keep the parties from resorting to litigation. Whether the entity is developed as a joint venture or a formal corporate structure, part of forming an effective venture is knowing how to renew, re-affirm, or possibly end it when necessary.

Define the how

This publication introduces several options for collaborative marketing. The exact arrangements that will make sense for your farm will be borne out of your own specific circumstances.

When you are making preliminary plans to market cooperatively with other farms, discuss your intentions with an independent advisor and professionals familiar with your type of farm. The discussion and note taking will help answer questions and point you in a profitable direction.

Collaborative Marketing Business Structures

One of the first things many producers assume is that they need to organize a “cooperative” for multiple farms to sell together; this is not true. There are several collaboration approaches available to farms. Collaborative marketing business structures range from very simple, contract-like agreements to the formation of new corporations. Something as simple as a consignment agreement allows one farm to sell through another’s market channels. In other cases, it is better to form a full corporation, cooperative, or partnership. More complicated options take longer to form and involve many legal, business, liability, and taxation considerations. Many small farms will benefit from starting with basic agreements (such as a joint venture or consignment), maintaining independence as an individual farm, before committing to a more lasting business structure. The simplest way for two farms to work together in marketing is for one farm to purchase directly from another. If this basic commerce relationship is not adequate for the objectives of each farm, then the farms can consider more formal collaboration

options. It is important to understand the basic collaboration business structures, along with their advantages and disadvantages, before committing to one over another.

Consignment sales

Consignment is a common means of selling farm goods on a small scale. Selling by consignment involves a written agreement to advertise, display, and sell your product at a market you do not own. As the producer, you would still own the product, but the other farm would sell it for you. In the consignment agreement, the original producer retains ownership of the product until it sells through the farm stand or store. To make the most of consignment, both the producer and the farm stand owner have to maintain good, updated records. Both parties must document all aspects of sales and inventory. The producer needs to manage cash flow differently because they will not receive payment immediately after each sale. The cash for a consignment sale might not come until the end of a month or at the end of a season. Like any other collaborative arrangement, you should develop an agreement in writing with the farm

stand owner.

The agreement should cover much of the following:

- Product description - name the products and how many are provided of each size.
- Terms of consignment - duration of consignment, retrieval and substitutions, and exclusivity of sales. Price - expressed as a percent or simply how much is due as a commission, and who pays sales tax if necessary (usually the retailer).
- Payment method - monthly, or at season’s end, depending on the business; how special orders are handled.
- Damage or loss - agreement on how loss is handled during sales.
- Product liability or warranty - specific language about which party is responsible in the event of contamination or product failure, or simple dissatisfaction with performance.

Joint venture agreement

It is helpful to think of a joint venture as a limited-term project, but

with more business and legal rigor than a mere handshake or verbal agreement. A joint venture is an enterprise created by two or more farms, or between a farm and another business, for a limited purpose and usually with a profit motive.

The written agreement formalizes the expectations of each farm as well as the duration of the arrangement (anywhere from a few months to a few years) after which it terminates or is altered. The farms remain independent from each other, except as agreed to in the joint venture document.

The joint venture agreement is customized and all parties must sign the agreement document. A joint venture for small farm marketing starts with basic information about the participating farms and a clear understanding of the rationale for the collaboration.

The main purpose of the written agreement is to put in clear terms the marketing activities being carried out, the period of time the collaborators will work together as combined unit, and the nature of sharing profits and losses from those activities. Another key aspect of the

joint venture agreement is to state unambiguously that no partnership or separate entity is intended or is created by the collaboration, and that one farm cannot use the collaboration to rope another farm into something. The most diligent step each farm can take is to work with an attorney to review the agreement, checking to see if anything important is left out.

Avoid the temptation to take an agreement found online or modify one that worked in another situation. Be sure to hire a capable attorney and check with other advisors with the skills and experience necessary for your project.

Partnership

In a few cases, a partnership will be the preferred way for two or more farms to market or otherwise work together. A general partnership binds two or more farms or individuals into one long-lasting entity. Even though partnerships are often assumed to be a good way to approach farm collaboration, they can have substantial drawbacks for the individual farms. Think of a partnership as a form of a separate legal entity, even if it is formed by conduct and not by

agreement. Under the right circumstances, a legal partnership can work out very well for all concerned. For something as specific as collaborative marketing among small farms, a partnership is usually more than the participating farms bargained for. A general partnership is a full joining of individual farm operations that were previously separate, creating a new business entity, and losing the marketing identity of the individual farms. New York Partnership Law defines a general partnership as “an association of two or more persons to carry on as co-owners a business for profit . . .” The partners establish a business agreement that binds the farm assets together, and can hold each farm liable for the obligations of the other farm, well beyond the marketing realm.

Separate legal entities

If a short term collaborative marketing agreement is working well among two or more small farms, it may be time to consider a long-term association.

The type of structure depends on what each farm wants to contribute, what kind of governance is in effect, tax considerations, and

exposure to the debts and other liabilities of other farms and individuals. Discuss a long-term collaborative marketing approach with family members and other key personnel at your farm. The choice of which business structure to use should be made with professional assistance from an accountant, a lawyer, a business counsellor, bank representatives, and insurance agents.

Agriculture cooperative:

A farmer cooperative is one of several ways that farms can buy or sell as a group. Strictly speaking, a cooperative is a formal legal structure that stands on its own, and is governed and administered separately from the member farms. A farm can purchase an equity share in a cooperative, but just by working with another farm, a cooperative is not automatically formed. A cooperative is a separate legal structure that limits liability since it is not an individual farm – it is a separate entity from the member farms.

Members of a cooperative “buy in” to an equity interest. Different types of equity interests may be created and issued by a cooperative as determined by its Board of

Directors.

Corporation or Limited Liability Company

Two or more farms can use a partnership or a corporate structure for their group marketing efforts, such as a Limited Liability Company (LLC), a cooperative, or a C or an S corporation. With such a legal entity, each farm would need to make a contribution to own an equity interest and share in the loss or profit.

A legal entity has a separate legal existence from its owners and could be viewed as a separate taxpayer. A business corporation is a structure separate and distinct, and so is owned by shareholders and is managed by a Board of Directors. A corporation has the power to do anything which an individual person may do, including owning farm assets.

No matter which collaborative structure is used, it is very important to have the terms in writing and reviewed by an qualified attorney. A written agreement is the best way to make sure good intentions turn into good business decisions for your farm.

Written by Jim Ochterski, Agriculture Economic Development Specialist Cornell Cooperative Extension of Ontario County, NY 480 North Main Street, Canandaigua, NY 14424 585-394-3977

Read more
https://rvpadmin.cce.cornell.edu/uploads/doc_48.pdf



Farming in Zimbabwe is becoming a more competitive industry. Success in the industry requires knowledge on the business environment (competitors, market, customers, and partners).

Such knowledge will enable you to take your farm business to the next level.

SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis will aid in keeping your business competitive.

Strengths and Weaknesses

The first two sections

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of the SWOT analysis usually examine the internal workings of your farm business.

These items are usually within the control of the business owners.

One example could be future management of the business. Is there a next generation owner/manager who has the interest in the business and the ability to manage the complexities of the business?

Another example could

be the financial position of the business. Does the farm business have too much debt held as short-term? Here are some sample questions that can be asked to assist in determining your business' strengths and weaknesses.

Strengths

What strengths does your business have that make you competitive? Examples might include family, labour, machinery, farm size, etc.

What do you do better than anyone else? Are you a better marketer? Are you a well-respected employer? Are you able to complete plant-

ing and harvesting duties efficiently?

What do your customers see as your strengths? Ask your customers what they think.

Weaknesses

What could you improve? What is holding you back? What little changes might make big impacts?

What should you avoid? Have you completed a financial analysis of your business to evaluate enterprises?

What do your competitors do better than you? You can work to be better than the competition, but in some cases you may be better off to fulfil a need they are not meeting.

Opportunities and Threats

The second part of the SWOT analysis requires you to look outside your business at issues that you cannot control but can manage to enhance or reduce their impact on your business. An example for a livestock producer could be the development of the neighbouring farm into single-family housing units. Here are some sample questions that can be asked to assist in determining opportunities and threats to your business.

Opportunities

What trends are facing your business? Will you have to increase in size to remain competitive or

can you remain at your present size?

What is happening in your community that can be advantageous?

Are new livestock facilities coming to your area that could provide a new market for crops you grow and sell? Is there an opportunity to market directly to local consumers? Is there a niche market?

Threats

What obstacles do you face?

What is your competition doing?

Do changes in technology threaten your business?

Does your financial position threaten your business?

Could any particular weakness seriously threaten your farm?

Who Should You Involve? Generally speaking, the people most directly involved with the business should participate in a SWOT analysis. This would include family members employed in the business and hired employees. Input from outside advisors, such as your attorney, banker, Extension educator, or accountant, may also be helpful as they may see your farm from a different perspective. Depending on the type of farm you have, asking customers their opinions can prove useful. Asking spouses, even if they are not employed in the business, for their opinions and perspective is

critical. Involving them may provide a different perspective and help the business achieve its goals. Not involving spouses can potentially do more harm to the family and the business.

Next Steps.

Completing a SWOT analysis of your farm business is the first step in strategic planning.

The process should help you identify areas where your strengths and opportunities align with a high probability of success. Conversely, you will also identify combinations of weaknesses and threats.

Your strategic plan should avoid these areas or at least provide for methods to minimize their effects on your farm business.

The SWOT analysis is not something you do one time and place on a shelf to collect dust. At least once a year, complete a new analysis. You may find little change has occurred, but it is still a good idea to review achievements, measure production efficiencies, and evaluate alternatives.

Ohio State University Extension



Why price information on fresh food commodities should not be overlooked

African agricultural policy makers have for decades preferred basing their decisions on prices of inputs like fertilizer, fuel and seed as well as processed food products like bread, sugar, cooking oil, margarine and others that are considered part of a family's food basket. This tendency has ignored prices of fresh commodities like leafy vegetables, tomatoes, potatoes and several others on which the majority of households in both rural and urban areas depend on a daily basis.

At least 25% of an urban household's daily food budget comprise necessities

like leafy vegetables, onion, carrots and others whose prices can change twice or thrice a week depending on seasons. While it takes many months for prices of processed commodities to be reviewed, such a practice excludes frequent changes in prices of fresh commodities that are consumed daily and constitute more than 25% of household's daily meal budget. For instance, if tomatoes constitute 10% of a household's daily meal budget of USD5, a 300% increase in the price tomatoes from USD10/crate to USD30/crate, increases the tomato budget for the household by 300%. It means the

household will use more of the USD5 to buy the same quantities of tomatoes and forego other necessities. Such changes are very common but these are often not recorded.

The intangible value of prices

In most cases, people have never asked why prices are very important. Prices are attached to many things like property, food and even knowledge. While price is an intangible commodity, it is one of the best ways of expressing value. Just like commodities, if someone does not eat a certain commodity or product, it has no value. Unless someone sees the importance of a granite

stone, it has no value.

Providing price information on a regular basis is searching for consumers interested in the value of particular commodities. If a bundle of vegetables is going for USD1, by calling out prices eMKambo is saying, who is seeking vegetables and prepared to part with USD1 for a bundle? Within a price are resources or a budget for exchanging the commodity and the monetary value. When one parts with a USD1 to buy a bundle of vegetables, there is an opportunity cost in terms of what else could have been bought with the same dollar.

The consumer could buy a drink, ice cream or anything worth USD1. However, if the consumer's priority is a bundle of vegetables, it means the buyer sees more benefits in vegetables than any other commodity. Continuously sharing information about prices assists buyers to make decisions about their budgets. When a consumer takes USD10 to the market for buying different commodities, it means commodities bought with that USD10 are more important than anything else.

Using prices to value national food basket
It is through prices that policy maker can know how much of the national budget is going to food

systems in comparison to other alternatives and opportunities. Prices are also very important in valuing the local food basket. For instance, knowing different quantities of commodities traded at different prices per day can reveal the amount of money circulating in the food market. It also becomes possible to know how much money is going to production zones and districts – indicating the contribution of food markets to rural development and other agriculture-related industries like seed producers and fertilizer. If there were no markets, farmers would produce very little for their own consumption.

Is the agriculture sector gaining or losing value? Continuously tracking prices is also tracking the extent to which the agriculture sector as a whole is gaining or losing value or losing its investment. Assuming the same commodities and quantities are traded in the market and USD50 000 is realized in a day, the following day the same commodities and quantities realize USD40000, it means there has been a loss by USD10000. This is very important for showing policy makers the value of supporting data collection and information management system in mass markets which are handling and distributing more than 70%

of agricultural production in Africa.

It is critical to relate agricultural commodity prices with the country's overall financial system. If, for example, the price of commodities is going up, it is important to explore reasons of price increases in relation to other non-food commodities. What are the push factors? Is it affecting only agriculture? Is it due to the exchange rate? Is it due to shortages? All these questions cannot be adequately answered without price information. To what extent are parastatals, farmer unions and policy makers valuing price information?

Contacts

charles@knowledgetransafrica.com
charles@emkambo.co.zw
info@knowledgetransafrica.com

Website

www.emkambo.co.zw
www.knowledgetransafrica.com

Mobile:

0772 137 717
0774 430 309
0712 737 430



Onion Production Guide

General

Onion requires cool conditions for good vegetative growth with a temperature range of between 12° C and 24 °C. Winter months provide these conditions as the long cool winter months gives better vegetative growth before bulbing, resulting in better and higher yields. As the summer months approach and high daily temperatures of 25° C to 27° C accelerates the bulbing process. If a cold snap occurs with temperatures of around 13°C while bulbing this can trigger bolting. The bulbs need a month of dry weather towards the end of its growing period for maturity. Onions are sensitive to length of daylight. Certain cultivars like “Texas Grano” an open pollinated variety have short daylight requirements that is why they are termed short day

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cultivars. Cultivars that can form bulbs in less than a 12-hour day length must be grown. Late or indeterminate day cultivars require longer day length, therefore should not be planted above the 28 Degree latitude, as the closer to the equator the shorter the day length.

Choice of cultivar is determined by whether long term storage is required or not. Some Seed Co hybrids such as Elad, Dina, Ada and Saturn will store for up to 5 – 6 months whereas open pollinated varieties do not have good storage properties. As onions remain in the ground for a long time weed control is very important because the soil should not be

worked deeper than 50mm to 75mm then, only during the early growth. Leaf disease control is also very important.

Variety sowing windows

NB: Sowing windows differ with varietal maturity and day-length requirements. E.g. growers in Zimbabwe will be advised to sow some Seed Co varieties from the beginning of the year as follows: Regent F1 (weeks 4-11 and 16-22), Elad F1 (weeks 5-22), Ada F1 (weeks 5-17) and Saturn F1 (weeks 9-18). Consult Seed Co Agronomists.

Site & Soil Selection

Onions have a relatively shallow root system to a depth of about 200mm to 300mm. Onions can be grown on a wide range of soils. Heavy clay soils however are difficult to work with and can cause serious

problems at harvest. Soils prone to capping i.e. T factor should be avoided.

Onions respond to well composted kraal manure at a rate of up to 20 tons per hectare which has been incorporated into the soil. Soil PH of 5.5 – 6.5 is optimum as at a low PH; certain diseases like white rot become more prevalent. Soil analysis is important and needs to be done for fertilizer application and to understand the cation balance e.g. Ca: Mg: K:Na ratio should be 65%:23%:10%:2%.

Soils should be deep ripped to achieve good drainage, with a good fine to medium seedbed tith with no large clods.

Fertilization

Soil analysis will help to decide how much fertilizer to apply. Onions generally do well with 1,000kg to 1,300kg of compound “C” (6:17:15). Calcium nitrate can be used as a top dressing at the rate of 300kg per hectare starting at 3 weeks after transplanting or emergence.

Another top dressing at 5 weeks, 7 weeks and 9 weeks up until seventh or eighth leaf stage. Micronutrient sprays of Nutrifoil every 2 weeks



at the rate on the label should be done until the bulb starts to form. Avoid late or excessive Nitrogen top dressings as this will cause “Bull necks”, it will also cause the plant to go back to vegetative mode if Nitrogen levels are high at bulb formation.

Production Methods

Onions can be produced in the following ways: -

1. **Production of seedlings in an open field seedbed for transplanting.**
2. **Doing seedlings in trays with up to 3 or 4 seeds per plug.**
3. **Seeding direct in the field with a precision planter.**
4. **Onion sets for transplanting.**

Field Seedbeds

A common method used. Sowing is done from early February to mid-April for transplanting from

May to June. Harvesting is then normally done from September to mid-October. Seed is sown in rows 150mm – 200mm apart and seed sown to a depth of 10mm to 12mm. About 7 grams to 10 grams seed is used per square meter. Allow 3kg to 5kg of seed to produce 600,000 seedlings to be planted per hectare. Transplant seedlings when pencil thick about 6 – 8 weeks after sowing.

Seed Trays

Sowing time is similar to open seedbeds. Seedlings normally only get to 3.0mm to 3.5mm in diameter. Once the plug is pulled, separate the seedlings and plant individual plants. Some growers plant the plug without separating the seedlings but at slightly wider spacing. This is not normally suggested as these clusters do not develop sufficiently and

some bulbs are malformed with flattened sides.

Transplanting seedlings from field seedbeds or plugs.

Seedlings are planted in shallow furrows which have been made on top of the bed. The number of rows will depend on variety and the growers decided final population. Roughly 5 to 6 rows on a 1,2metre bed top is the normal. Seedlings are placed at a slant on the sides of the furrow and the roots are covered with soils to a depth of 1cm to 2.5cm. After transplanting, the seedlings will lie flat but will recover in a few days after the settling in irrigations and will start growing upright.

Direct Seeding

Direct seeded crops are normally 6 weeks earlier to maturity and avoids the labor-intensive practice of transplanting. A big disadvantage is that the entire field must be kept weed free, seedlings are still very small, weak and vulnerable. Weed control pre and post emergence is very important. Irrigation is a problem as it needs to apply small amounts often and evenly over the entire crop until germination is complete. Seed requirement is between



6kg to 8kg per hectare.

Sets

Sets are more robust after they have been transplanted and therefore easier to manage. Seed is sown in an open field nursery on beds that are 1.2metre to 1.6metre on top with 6 or 8 rows per bed 20cm apart this figuration depends on if a planter is being used or being done by hand. Seeding is normally done in June in the hotter parts of the country and July – August in the cooler areas as a rule of thumb one hectare of seedbeds should supply enough seedlings for 10 hectares of crop. It is very important that not too much Nitrogen is given to the growing seedlings. Approximately 30kg – 50kgs of Nitrogen needs to be applied per hectare.

After germination the bulbs will start to form

within 4 – 6 weeks.

Bulbs will continue to grow until November when their size gets to 20mm – 25mm in diameter, then will begin to lodge. Lifting will be done in late November to Mid-December. After the sets have been lifted allow the necks to start drying off for 2 – 3 days then the sets can now be dried in bulk bins, on wire racks or cages. Make sure that the necks of the sets are completely dry before storage. It is important that the storage facilities are adequate to hold all the sets as they need to be kept for between 2 – 3 months before planting out. Before storage, sets can be graded into roughly 3 sizes, 15mm – 20mm – 25mm so immature and over size bulbs can then be discarded so they do not take up storage space. If sets are stored in bulk do not go higher than 1metre –

1.5 meter in the drying room. There are two methods of storage, either cold or warm. Cold storage needs temperature ranges from 1° C to 4° C with a R.H of 65% - 75%. Warm storage has a temperature of 26 °C – 27° C with a R.H. of 60% - 75%. Sets can be stacked on a slatted or perforated floor so that an air flow can then pass through. There are problems with cold and warm storage. High temperatures can result in slow emergence after planting out the sets due to the lack of the breakdown of the inhibitor (diallyl-disulfide) which is formed in the sets during the latter stages of growth.

After planting out frequent light irrigation of 1mm to 2mm can be applied twice a day to help cool the soil down. Warm storage is best for sets larger than 25mm, as large sets are prone to bolting with cold storage conditions. Cold storage can lead to unwanted flowering if sets are kept for the whole period of storage. The inhibitor is broken down by cold storage. Before storage contact your Seed Co Agronomist to recommend a fungicide to prevent disease and decay during storage and how best to apply it. Remember to dry the bulbs again if dipped in a



chemical solution.

Make sure at transplanting time that the sets must be completely covered with soil as any part left exposed will probably get sun scorched resulting in possible pathogen attack. After transplanting out the sets the smaller size sets just start enlarging in size and begin to become normal onions. Large sets over 35mm in diameter often split. The idea of using sets is to get a crop to mature earlier than the normal plantings thereby catching higher prices on the market.

However, this method does result in a rather uneven crop. The percentage of bolters, thick neck bulbs and split bulbs is often quite high. Spacing of the sets in the field is the same as for planted out seedlings or direct seeded crops.

Planting is done by hand or a specially designed planting machine- Seed count is normally 270,000 seeds per kilo.

Spacing

Plant density can be from 600,000 to 800,000 plants per hectare. This gives yields of 80 000kg to 120 000kg per hectare of fresh market bulbs. Plant on beds of 1.2m – 1.6m beds center to center. Five to eight rows per bed 20cm apart and seedlings or seeds 5cm to 10cm apart. Planting depth is critical as this has a noticeable effect on the bulb shape. The onion stem plate forms at the point that the seed germinates. The entire bulb forms above this point thus the bulb may form below or above the soil surface depending on the placement of the seed.

Irrigation

After sowing the seed direct in the field or in

the field nursery seed-bed the soil surface should not be allowed to dry out. This entails short irrigation cycles two to three times a day depending on weather conditions. After transplanting seedlings, they should be watered daily until the plants stand up. Onion roots can penetrate up to 800mm but most roots feed in the top 200mm – 300mm of soil. Care of irrigation management in the first 9 – 10 weeks is important, before bulb formation and the next important period is just before harvest. No stress should be allowed during bulb formation; however, no irrigation should be applied for the final 3 weeks before maturity to allow the bulbs to cure properly. A good onion crop will require 600mm – 700mm of irrigation.

Harvesting

Some growers harvest a small portion of the crop once the bulbs are a good size and sold as green onions tied in bunches. Mostly growers start harvesting when the tops of over 50% of the crop have collapsed and fallen over, even though the leaves still show a green color. A good way to lift is to loosen the soil with a blade pulled below the root zone. Leave the onions for 3 – 4 days to

syngenta **Onion Spray Guide**

Stage	Nursery	Transplanting & seeding establishment	Vegetative	First blubs	Bulb expansion	Mature
Days:	0-49	42-56	50- 90	90 - 110	110 - 170	150 -200
Pest Problems						
Nematodes	Soligo					
Soil Pests		Acara Soil stretch				
Cutworms		Karite Zoon				
Thrips			Acara / Amaligo			
Disease Problems						
Damping off	Apron Star Seed Dress					
Downy mildew & white tip			Ortiva/Rivoma/Fabla Gold/Flexa			
Purple blotch (alternaria)			Amistar Top / Bravo			
Neck Rot				Amistar Top / Oriva		
Weed Problems Below are off-labe suggestions; grower must do own tests for crop damage.						
Before planting - post emergence perennials	Touffeur					
Before planting - post emergence annuals	Sustrone / Touffeur					
Pre-emergence: grasses			Dual Magnum			
Post-transplanting : pre-emergence: grasses	+ broadleaf					
Pre-emergence: grasses + Broadleaf		Senar				

dry then pull them out by hand. Even if the crop is not going to be stored, the bulbs should be dry before marketing. Pull up to about 10 rows at a time and place in a single windrow in the field with the leaves being put over the bulbs to stop sun burn.

These are left for a further 2 – 3 days to dry and then the roots and leaves are cut off. If rain should fall before the onions have been removed from the field the windrows should be turned over and opened to dry before re doing the windrow. Once off the field and in the shed onions can be graded to size before pocketing for marketing. If onions are to be stored the keeping quality is related to the number of cells per volume of the bulb, the amount of growth inhibitor (diallyl disul-

phide) is formed in the leaves then translocate to the bulb at maturity. Make sure the onions have lodged properly for this process to take place to enhance the keeping quality.

Effective drying is when the temperature is around 27° C and low humidity of 75% R.H. with good ventilation.

This temperature also reduces sprouting in the stored onion. Where long term storage is required it is important that high relative humidity of 75% - 80% R.H. are avoided as this is the enemy of stored onions. High R.H. promotes root growth and the development of storage pathogens that could result in big losses. Low relative humidity of less than 65% R.H. leads to excessive moisture loss resulting in shriveled bulbs and big losses in weight.

For long term storage good management of the shed is vital. Before filling the shed it should have been cleaned thoroughly to prevent fungal and bacterial infections. All damaged onions should be removed at grading before coming into the building. Good ventilation, temperature control and humidity control of all the bins should be checked regularly, and any onions with Basal, Neck and Soft Rots which are common storage problems must be removed. Keep the floor clean of debris and sweepings.

A well cured onion will

store and remain in a good state for a long time.

-Prime Seedco



Notes

- For any crop, always research and secure a market before investing in production. This ensures a sustainable farm business operation that is market driven. Answers to the following questions are important: Who will buy? At what price? Where? Who will provide transport? Are there any hidden costs of selling? Can I add value to my produce? How can I best package and sell my produce?
- Get trained on production and business. The training should cover; land preparation, varieties, fertilizer requirements, management (record keeping, accounting, marketing), pests and diseases, possible problems and solutions, harvesting, storage and transportation.
- Soil quality and water available are key to successful production. Take soils for analysis and ensure you have a reliable water source.
- Visit successful and unsuccessful farms.
- Subscribe to local farmers' magazines and research more on production and business management.
- For large operations, hire an Agribusiness Consultant and an Agronomist to assist you.

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Onion Production Guide 1 Ha
































































































































Planting dates	<ul style="list-style-type: none"> • February to April
Days to Harvest	<ul style="list-style-type: none"> • 120 to 220 days <i>depending on cultivar</i>
Harvesting duration	<ul style="list-style-type: none"> • - Days
HARVESTING	<ul style="list-style-type: none"> • 20 - 60tons depending on variety
Soil requirements	<ul style="list-style-type: none"> • pH 5.0 to 6.8 • Well drained high organic matter • Soil testing is key
Seed bed	<ul style="list-style-type: none"> • 2.5 – 3 kg in a nursery seed bed • Floating seed trays can also be used • Ensure free drainage
Transplanting	<ul style="list-style-type: none"> • 8 - 10 weeks after emergence (pencil like size) • Plough, disc and harrow at 30cm depth • Apply lime (at least a month before planting) only if pH is below 5.0
Spacing	<ul style="list-style-type: none"> • In-row: 50 - 75mm • Inter-row: 300 - 350mm
Fertilizer requirements	<ul style="list-style-type: none"> • Basal Dressing: Compound S, 1 000kgs/ ha or manure 25 to 50 tons/ha • Top Dressing: Ammonium Nitrate 100kg/ha
Weed management	<ul style="list-style-type: none"> • Grasses only / Trifluralin 48EC 1.1 - 6L/ha / Agil 100EC 0.5 - 2L/ Ha
Pests	<ul style="list-style-type: none"> • Cut worm/ Lambda 200mls • Caterpillars/ Carbaryl 85WP 400g/ Ha • Thrips/ Cartap hydrochloride 400grams/100 litres of water • Leaf Hoppers/ Malathion 25WP 400g/ Ha
Diseases	<ul style="list-style-type: none"> • Alternaria/ Dithane M45 400g/ Ha • Downy mildew/ Copper Oxychloride 85 WP, and Dithane M45. • Purple Blotch/ Tebuconazole 25EC 150mls/100 litres of water. Dont use on spring onions • Neck Rot/ Dithane m45 2kgs per hectare • White Rot/ Dicloran 400grams/100 litres of water



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Crop Planting Calendar (Zimbabwe)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beet Root												
Brinjal (egg plant)												
Broccoli												
Butternut												
Cabbage												
Carrots												
Cauliflower												
Chillies												
Green beans												
Green mealies												
Lettuce												
Marrow (baby)												
Onion												
Peas												
Peppers												
Potato												
Squash												
Squash (germ)												
Squash (marrow)												
Tomato												
Water melon												



The Business of Mushroom Farming - A Step by Step Guide

Step 1

Getting Started Of course, you need some land to plant your mushroom crop. A 1/8th acre piece of land would be adequate to set up a large farm that can produce as much as 2 tonnes of mushrooms after every 2 months (using shelf-frame method).

Step 2

Build a Simple House. Once you have secured a good piece of land, you will need to build a simple mud-house and a few wooden shelves to utilize the vertical space available. Your local carpenter can help you with this and you can improvise on locally available materials to save on construction cost. (Note: Make sure the house is well aerated to allow proper circulation of air).

Step 3:

More Information

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Look for the substrate. The first and most important supply you will need is the substrate. Substrate is basically the substance on which mushrooms grow. This can be forest soil, wheat straw, bean straw, millet straw or even rice straw. Make sure this is sterilized as the slightest bacterial infection can ruin your entire farm.

Step 4

Invest In Nylon Bags. You will need small bags to prepare the seedlings and also big bags for the final planting. Use Small bags like the ones shopkeepers use to package 2KG sugar. Bigger bags you will require about 1000 of them in a 1/8 th acre farm.

Step 5

Invest In Good Hygiene. As you will discover through farm training courses, good hygiene is important in a mushroom farm. You will therefore need to buy things like hand gloves, methylated spirit and cotton wool. Other additional supplies that may be needed include drinking straws and a knapsack sprayer.

Step 6:

Now Get The Seeds. Finally you will require some mushroom seedlings (also known as spawns). The most popular (and easy to market) spawns are called button spawns. 5 Kilograms will be enough to get you started. Other varieties of mushrooms you can plant including: shiitake and oyster.

The Dos

- Keep the growing environment clean and sterile always

- It's advisable to experiment with a small farm before venturing into a big farm
 - Consult an agriculture extension officer in your area for further advice
 - Seek mentorship from farmers who are already doing this to understand what challenges they face
 - Explore your market options in advance to avoid last minute surprises and disappointments
- mushrooms are very delicate crops and you can lose your entire investment if you don't follow professional advice in handling them
- Don't buy seeds (spawns) from cheaper sources, always buy from reputable sellers
 - Don't forget that cleanliness is at the center of your farm's productivity (again, and again)
 - Don't be in a rush, take your time, like in any other business mushrooms take time to establish

keep researching and keep enquiring to learn the best practices

The Don'ts

- Don't take shortcuts,
- Don't stop learning,



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Solar Street Light With Wifi CCTV Camera 	Solar Flood Light 	Solar Pumps 	Solar Pump System 

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Biogas Storage Bag 	Biogas Stove with Oven 
Biogas Rice Cooker 	Biogas Flowmeter 
Biogas lamp 	Biogas Water Heater 

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Tips on Harvesting Greens

Farmers Trend

As a farmer, you want the vegetables you grow to be fresh and high-quality. You also want to harvest them at the proper time, knowing how to be efficient with your time and how to handle each kind of vegetable properly. Your customers may not know exactly when and how you harvested your produce, but they will be able to see and appreciate clean, fresh vegetables! This article can help you make sure your produce gets to your customers at the right time, in the right amounts, and at top quality.

The keys to harvesting produce are:

- Picking vegetables when they reach the right size.

More Information

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- Picking vegetables at the right time of day.
- Handling the vegetables as little as possible.
- Bunching or packaging the vegetables in recommended sizes and quantities.
- Selecting the right package or container to store vegetables.
- Storing the vegetables properly and at the right temperature.

Remember, you can spend months and months growing a crop, but if it is not clean, fresh, and beautiful when it gets to market, customers will not

buy it! So it is important to harvest, handle, and store your vegetables properly.

Take the extra time at first to learn about harvest and post-harvest handling.

Soon you will be faster, more efficient, and your customers will keep coming back!

Food safety overview

The majority of farm fresh foods are wholesome and safe to eat raw. However, as a farmer, it is necessary that you take steps to reduce the risk of contamination to protect your customers and your business. There are some key practices you should follow to ensure the safety of your food and workers,

....continued on page 25

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....continued from page 23

called Good Agricultural Practices (GAP). Below are a sample of GAP practices.

Soil

- Know the history of the land. Have chemicals or manure been applied to the land in the past?
- Select fields that are uphill or are located far from animal housing and grazing areas to avoid contamination from animal manure or animals' walking on or near crops.
- Use composted manure instead of fresh manure on fields when possible.
- Maximize the time between manure application and crop harvest.
- Document all manure applications to your fields.

Water

- Be familiar with the source of your water. Where does it come from? Are there any operations upstream that may affect its quality?
- Be sure that your water wells are designed and maintained properly.
- Have your well

water tested at least annually to be sure it is safe to drink and wash vegetables

Workers

- Encourage workers to wear clean, protective clothing in the field.
- Provide toilet facilities to all workers in the field and in the packing house.
- Require workers to wash hands with hot, soapy water after using the bathroom.

Pesticides

- Follow instructions when using pesticides. Always follow days-to-harvest instructions on the label.
- Store or dispose chemicals properly
- Clean and rinse spray equipment to keep it in good working condition

Handling

- Develop daily cleaning schedules for work surfaces, restrooms, and keep maintenance logs.
- Remove excess soil from produce in field.
- Protect produce from direct sun exposure.
- Wash harvest bins

regularly to reduce sources of contamination.

- Keep pest from contaminating packaging materials

Amaranth, Kale, Lettuce, Mustard Greens, Pumpkin Vines, Salad Mix, Sweet Potato Greens, Spinach

Now that you have produced a quality crop, it's time to harvest and take to the market. The goals for a harvesting system are:

- To collect the produce from the field at the right stage of production (varies with crop type and intended use),
- With a minimum amount of damage or loss,
- At the rate required for optimum handling (sorting, washing, cooling, packaging, transport and marketing etc.), and
- In a cost-effective way.

When to Harvest/ Maturity Guidelines:

- Harvest before the plant flowers or sends up a flower spike.
- Leaves should be tender, not tough.



Female Force of Farming Caroline Maumbe

Location

Harare

Projects

231 Pigs and 60 roadrunners(new project). On own land.

Motivation

I believe farming is the backbone of my country's economy.

Achievements

I'm happy to be a producer for surrey meats

Challenges

Not yet in the position of growing my own maize or soya beans so stockfeed is expensive, as well as stockmen challenges.

Ambition

More Information

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in the end.

Female force of farming

To be one of the biggest pork exporters.

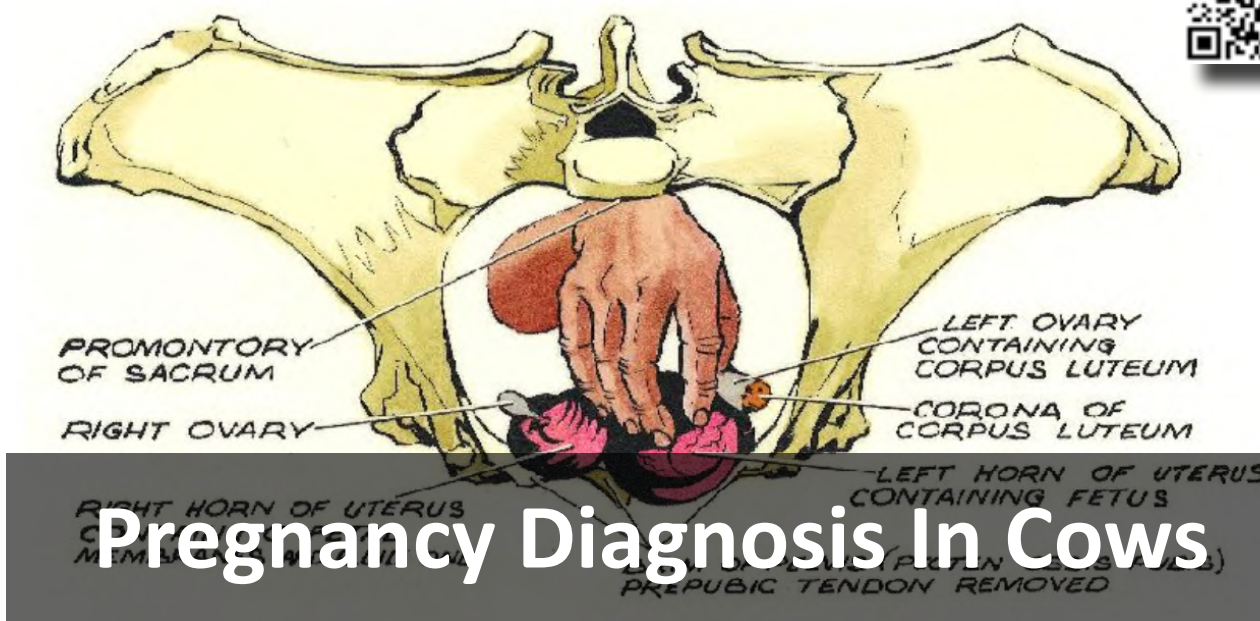
Feedback to Women in Agriculture Union

I am grateful for the support system from fellow women, testimonials and information shared. WAU please find us lucrative markets for our produce and also help us find good breeds.

Advice to other women

Believe in yourself. Work hard to achieve your goals. You can do it, don't look down on yourself or underestimate yourself. Never say "i can't do this" do it ufoire urimo you make corrections and get it





Pregnancy Diagnosis In Cows

Methods of pregnancy diagnosis

A variety of different methods have been, and are still, used to detect the presence or absence of pregnancy in the cow. These range from the identification of substances that are present in body fluids using laboratory assays, and from different ultrasound modes, to simple clinical methods such as transrectal palpation; the latter has been the most widely used method for the last 70 years.

In terms of efficient livestock production, it is the early identification of the non-pregnant cow that is important, since immediate measures can be taken to attempt to induce pregnancy again as soon as possible.

Clinical methods for Pregnancy Diagnosis

Trans-rectal palpation ;

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Palpation of the amniotic vesicle

This method involves the palpation of the amnion towards the end of the first month of pregnancy. It proceeds briefly as follows. The bifurcation of the uterine horns is located, then the horns are uncoiled and gently palpated along their entire length between the thumb and middle two fingers. The amniotic sac can be felt as a distinct, round, turgid object 1–2 cm in diameter floating in the allantoic fluid. The vesicle should not be compressed directly but gently pushed backwards and forwards. Some consider that this technique is dangerous because of the possibility of rupture of the amniotic sac or of the embryonic heart. As with all rectal

techniques care is the rule, and excessive pressure and rough handling should be avoided.

Palpation of the allanto-chorion (membrane slip)

This method is dependent upon the facts that in the cow, attachment of the allanto-chorion to the endometrium occurs only between the cotyledons and the caruncles, and that the inter-cotyledonary part of the fetal membrane is free. The method was first described by Abelein (1928), who reported that it could be used from the fifth week of gestation. The method is as follows.

Identify the bifurcation of the uterine horns, pick up the enlarged, gravid horn between thumb and either index or middle finger just cranial to the bifurcation and gently squeeze and roll

....continued on page 29

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....continued from page 14

the whole thickness of the horn. The allantochorion will eventually be identified as a very fine structure as it slips between the thumb and finger before the uterine and rectal walls are lost from the grasp. It is important in the early stages of pregnancy to grasp the whole width of the horn because as the allantochorion is very thin at this stage the structure that can be more readily identified is the connective tissue band which contains the blood vessels supplying the allantochorion.

Fincher (1943) recommended that it should not be used before 40 days of gestation and that it was infallible up to 95 days. The advantage of the method is that it enables the differential diagnosis of pregnancy from mucometra or pyometra. In some cases, particularly after 60 days of gestation, it can be more readily elicited in the non-gravid horn since the tension on the wall is less and this allows it to be grasped more readily. For the beginner it is a worthwhile exercise to practice it on a fresh gravid genital tract from the abattoir.

Unilateral cornual enlargement

Unless there are twin conceptuses, one in each horn, it is possible to detect a difference in the size

of the two horns. This is largely due to the presence of fetal fluids, in particular allantoic fluid, which gives the uterine horn a fluctuating feel with

good tone. It can be likened to the feel of a toy balloon which has been filled with water to a point when the wall just starts to stretch. At the same time, if the wall of the horn is squeezed it is noticeable that it is much thinner than that of a non-gravid tract. In many cases a definite diagnosis of pregnancy can be made on these signs alone.

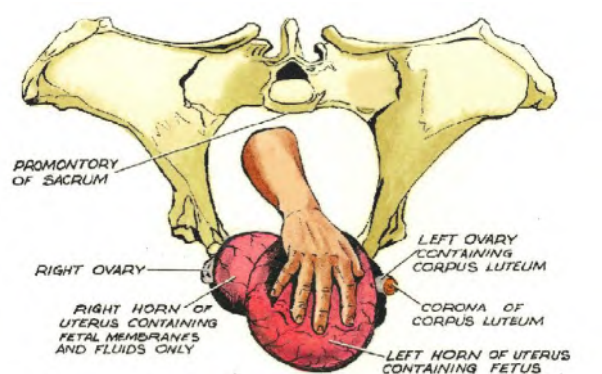
The presence of a CL in the ovary adjacent to the enlarged horn is a useful confirmatory sign; however, a false diagnosis of pregnancy may be made in cases of pyometra, mucometra or incomplete uterine involution.

Palpation of the early foetus

At about 45–50 days of gestation the amniotic sac becomes less turgid, and it is sometimes possible to palpate directly the small developing fetus. This should be done with care.

Palpation of the caruncles/cotyledons

Caruncles/ cotyledons first



become recognizable by rectal palpation at 10–11 weeks as roughened elevations when the fingers are passed back and forth over the surface of the enlarged gravid horn. From about 3 months they can be identified as discrete structures in the midline, about 8–10 cm in front of and over the pelvic brim, by pressing down upon the uterine body and base of the horns.

In the early stages it is difficult to identify them as distinct, individual structures. The uterus feels as if it has an irregular corrugated surface; it has been likened to palpating a sackful of small potatoes. As pregnancy proceeds, the cotyledons become larger, but once the uterus has sunk into the abdomen between 5 and 7 months, it is sometimes impossible to palpate them, although if loose substantial pressure is placed on the body of the uterus just cranial to the cervix with the flat portion of the fingertips,

as if attempting to palpate the udder transrectally. Identification of cotyledons is virtually diagnostic of pregnancy, but in the immediate postpartum uterus they can also be felt.

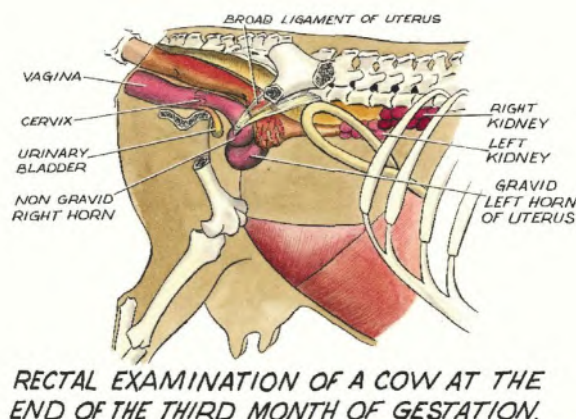
Palpation of the cervix

Evidence of pregnancy can be assumed when there is tension on the cervix. In the non-pregnant or early pregnant cow or heifer the cervix is freely movable from side to side. However, as pregnancy advances the cervix becomes less mobile and it is pulled forwards and downwards over the pelvic brim.

Hypertrophy of the middle uterine artery and development of fremitus

In a non-gravid or early pregnant cow, identification of the middle uterine artery by palpation is usually not possible transrectally. The artery runs in the broad ligament, along a tortuous course, passing downwards, forwards and towards the midline over the pelvic brim close to the junction between pubis and ilium. Usually, it is identified 5–10 cm lateral to the cervix. Inexperienced persons sometimes confuse it with the iliac and obturator arteries, but the middle uterine artery is mobile and it can be encircled within the thumb and forefinger.

At some stage during pregnancy it will cease to have the usual pulse, and instead it will become a 'thrill' or tremor, which is called fremitus. There is considerable variation in the time at which the change can first be felt and also when it becomes continuous. The earliest the author has been able to detect it is at 86 days. During the period 100–175 days cases will frequently be met which 'thrill' at first but later pulsate. It is probable that the degree of pressure applied to the artery influences the feeling imparted to the fingers; light pressure detects a 'thrill', whereas a pulse wave is apparent to heavy pressure. The 'thrill' generally becomes continuous after day 175, although cases will be met in which there is distinct pulsation as late as day 200. During the terminal stages of gestation the uterine arteries become greatly hypertrophied and tortuous; they can be distinctly felt, with the thickness of a pencil, with a continuous, tremor-like pulse, laterally situated 2 cm or so in front of the cranial border of the iliac shaft. A difference in size of the two uterine arteries is usually recognisable from about day 100, and this indicates the side of



the pregnant horn. Palpation of the middle uterine artery is usually possible in even the biggest cow, and thus is particularly useful in large beef suckler cows.

Fremitus in the posterior uterine arteries was detected between 200 and 248 days on the gravid side and between 235 and 279 days on the non-gravid side by Tsolov (1978). He also found that the onset of fremitus was later, the greater the number of times the cow had been pregnant.

Palpation of the late foetus

Palpation of the fetus, either per rectum or by abdominal ballottement, is diagnostic of pregnancy. The ease of palpation depends upon the size of the cow, the degree of stretching of the suspension of the uterus, and the degree of relaxation of the rectum and uterine wall.

-Vet Information



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- Depending on vegetable type, cut when leaves are small and very tender (7–10 cm high);
- Be sure weeds or grasses have been removed from harvest area.
- For pea tendrils, snap off tips of plants where stem is still succulent and soft; harvest before stems turn stiff or woody.

Time of Day to Harvest:

- Early morning is the best time to harvest most greens, since that is the coolest time of day.
- If morning is not possible, try to harvest in the evening after the heat of the day has passed.

Harvesting and Post-Harvest Handling Instructions:

- Dunk greens in cold water and keep moist in a shaded basket or bin while in the field.
- Remove any weeds or grasses from the crops.
- To keep greens from wilting, they must be cooled as soon as possible after harvest.
- Discard any bruised, torn or otherwise

damaged leaves.

- Use rubber bands or twist ties to hold the greens together in bunches.
- Trim the ends to even them out if necessary.
- Be careful not to bag greens without removing 'field heat' or cooling first!
- If greens do not cool first, they may 'sweat' or wilt in the bag.
- Allow adequate air space in the bag and either leave open or close loosely if on display at a market.
- Keep bagged greens out of sunlight.
- Greens will droop and wilt very quickly if they are left out in the sun.
- Keep greens moist and cool at all times.
- When you first put greens in the cooler, leave the top flap open so the greens can release the heat from the field.
- Do not seal bags of greens. Let air flow in so the greens can cool off.
- Mist or sprinkle water over loose greens to keep them wet.



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Q

Who is better for my farm business between a partner and an investor?

A

Understanding what the big difference between a partner and an investor is very important. These two can help finance your business whether you are starting or expanding your business. Even so, they play totally different roles in the business.

The major difference between an investor and a partner is their financing within the business. While a partner contributes as per the agreement, the investor in most cases puts in more of the finances. A partner shares in the losses, profits and business responsibilities, basically they are totally involved in running the business. However, an investor waits for returns on their investment to the business. Even in an event of losses, the business owner has to give returns as agreed with the investor.

The second difference is their involvement in the business activities. After giving their contribution to the business, investors are not involved elsewhere in the business operations apart from management decision making. However, a partner is a

business owner too and they are as involved in the business as the business idea owner apart from the fact that they may have fewer shares and therefore lesser responsibilities.

The relationship between you as the business owner and the partner is based on trust, most partners are people you know and have shared experiences. Investors, on the other hand, are new people to you and they leave the responsibility of generating returns entirely to you.

Word Search

E	D	L	F	A	R	M	S	D	P	N	S	O	T
R	E	S	S	C	O	M	M	I	T	T	I	N	G
D	D	E	S	D	L	I	S	V	U	R	E	O	T
I	N	S	E	E	S	C	H	E	D	U	L	E	O
S	I	E	C	A	B	W	O	R	K	I	N	G	G
T	M	L	C	M	E	S	E	S	N	E	P	X	E
R	E	A	U	M	A	R	K	E	T	I	N	G	T
I	K	S	S	P	R	O	D	U	C	E	R	S	H
B	I	T	E	R	E	A	L	I	S	T	I	C	E
U	L	C	O	O	P	E	R	A	T	I	V	E	R
T	Y	L	L	A	M	R	O	F	T	B	R	E	L
E	I	L	T	E	C	H	N	I	Q	U	E	S	O
A	A	M	T	N	E	M	N	G	I	S	N	O	C
F	A	C	T	O	R	S	M	A	L	L	E	C	I

- REALISTIC
- DIVERSE
- DISTRIBUTE
- SUCCESS
- SALES
- TECHNIQUES
- FORMALLY
- TOGETHER
- CONSIGNMENT
- COOPERATIVE
- LIKE MINDED
- SMALL
- COMMITTING
- WORKING
- FACTORS
- PRODUCERS
- SCHEDULE
- MARKETING
- EXPENSES
- FARMS

online version

S	C	D	P	O	P	U	L	A	T	I	O	N	E
I	M	A	R	K	E	T	L	I	M	E	C	H	
P	T	H	M	U	I	B	O	Z	I	H	R	I	S
M	R	T	E	N	I	T	R	O	G	E	N	T	E
D	A	E	E	R	F	T	E	G	D	U	B	A	N
E	S	S	E	C	B	K	L	I	O	S	E	M	S
I	U	R	T	M	O	I	R	T	L	B	S	I	I
F	G	S	T	E	E	N	C	D	I	L	I	L	T
I	A	T	S	S	C	R	O	I	E	F	E	C	I
T	R	S	O	C	S	L	G	M	D	E	O	O	V
R	B	E	R	O	O	H	A	E	I	E	W	R	E
E	E	P	F	F	I	R	O	S	N	C	S	G	P
C	A	S	H	C	R	O	P	R	S	C	S	A	Z
S	N	M	G	V	A	R	I	E	T	I	E	S	E

There 5 differences between these pictures. Can you spot them?

See answers on Agribusiness Talk social media handles



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+263 772 125 422



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