

THE IMPORTANCE OF QUALITY AND PRESENTATION

INTRODUCTION

Most growers would agree that, while it is relatively easy to grow vegetables, it is somewhat more difficult to grow them well, which implies attaining the necessary good yields and quality required for a financially rewarding crop.

Environmental factors, cultural practices and management decisions all play vital roles in achieving good yields of quality produce. Generally, low-yielding crops tend to have a poor quality, whereas high-yielding crops deliver a good quality product. Exceptions to this may be found when an imbalance of nutrients may reduce keeping quality and taste, or where pests or diseases damage the product.

What is quality?

Most people will probably recognise good-quality produce, but may have difficulty in defining it. "Quality" may mean different things to different people. Factors such as texture, flavour, colour, size, shape, scarring, bruising, presence of insects or insect marks, diseases, shelf-life or keeping quality, freshness and cleanliness are all components of quality. Vegetables should be clean, fresh, well-sized, uniform in colour, shape and size, as well as being succulent and not obviously fibrous, and free of blemishes.

Buyers usually use freshness and general appearance of the produce as their main criteria of quality. Some plant breeders have fallen into the obvious trap of concentrating on firmness and visual appeal of new selections, to the detriment of taste.

The importance of quality

Many growers do not fully appreciate the role that quality plays in the economics of a vegetable enterprise. However, a glance at market reports clearly shows that prices for any particular product, at any specific time, vary tremendously. This is largely due to differences in the quality of the produce being offered for sale. The discriminating buyer is willing to pay a premium for good quality, and rightly so. It has a longer shelf-life, which means there is more time available to resell the produce, and less wastage. The buyer also generally has a quicker turnover and obtains a better price, because the product has more eye-appeal. The consumer prefers blemish-free produce that will keep.

The following extract from a Johannesburg National Market report more graphically illustrates the effect of quality on prices obtained on the same day.

Table 9.

The variation in prices of selected vegetables because of quality differences

Product	Price in cents per kg	
	Best quality	Other
Gem squash	55	20
Green bean	155	60
Green pea	205	55
Tomato	130	58
Sweet potato	300	200

Similar price differences occur for other products on other markets.

The significance of this to the grower is obvious. For example, a 10 cent per kg net difference in price, on an average yield of 40 tons of tomatoes per hectare, means a difference of R4 000 in income from one hectare. In practice, this difference between a good- and poor-quality crop is likely to be even greater, because the better-quality crop is also likely to produce a larger yield, the outcome of good management by the producer.

It should also be borne in mind that when there is a glut of a particular vegetable on the market, good quality will probably still be sold, admittedly at depressed prices, whereas much of the poorer produce will remain unsold.

Factors affecting quality

It should be obvious from the above that growers must pay attention to quality aspects. It is generally accepted that crops should grow rapidly and steadily, if high yields of good quality are to be achieved. Any set-back to growth will detrimentally affect yield or quality, and usually both. Many factors such as climate, soil, soil preparation, cultivar, seed, planting time, nutrition, water, weeds, pests and diseases, may play a role. Management is all-important. The correct decisions, actions taken timeously and correctly, and general attention to detail, are major factors affecting yield and quality. However, it is not the intention to discuss these aspects in this chapter.

What is important to remember is that it is not really possible to improve the inherent quality of a crop after harvest, except possibly for allowing crops like tomato to ripen and colour up more fully than when they were picked. The best that can be done is to attempt to maintain that quality for as long as possible, and to present it to the best advantage.

PRESERVATION OF QUALITY AND ENHANCING APPEARANCE

Harvesting

All consumers prefer sound, healthy produce, with a good, fresh appearance. The produce must be harvested at the correct stage of maturity, consistent with the requirements of the specific market, bearing in mind the inevitable delays between harvesting and marketing. Insect-damaged, diseased, malformed or otherwise undesirable produce may already be discarded at harvest, but such waste products are best removed from the land and destroyed, in order to reduce sources of disease or insect attack.

Fresh produce starts deteriorating immediately after picking, and it does so at a faster rate when temperatures are high. Harvesting of such produce, especially the more perishable products, such as broccoli, lettuce or spinach, should preferably not be done during the heat of the day, nor while the field heat of the product is high. Keeping the picked product cool, or even cooling it artificially, reduces the rate of deterioration. Harvested produce should be moved into the shade, preferably into a cool, well-ventilated area, as soon as possible. It should never be left exposed to the sun for long periods, as sunscald is more severe after harvest than when the crop is still attached to the plant. If picked into plastic bags, such as old fertilizer pockets, the produce is particularly prone to sunburn unless shaded. It also "sweats" more because of reduced air-flow, and this combination of heat and free moisture is conducive to more rapid deterioration and rotting. Should such bags be used during harvesting, it is best to empty them out as soon as possible. The use of slatted plastic lugboxes or crates, which improve the exchange of air, is preferable for both harvesting and storing the produce.

Young, immature produce, such as very young green beans, baby marrows or young leaves of spinach, deteriorate more rapidly than more mature products, and consequently demand more rapid marketing. As a general rule, marketing of all products is best done as soon as possible after harvesting. The possible exceptions are crops such as garlic, onions, potatoes, sweet potatoes and pumpkins, which can be successfully stored for some time at normal storage temperatures.

Ensure that the product is not over-turgid (contains too much water) at harvest, as such produce is more easily damaged by handling. For example, the protective wrapper leaves of lettuce are more brittle and break more easily, even when handled carefully, and turgid green bean pods snap readily. Neither should the product be too dry, because it will wilt more quickly and lose freshness. Generally speaking, crops should not be harvested while wet.

Handling

Great care should be taken in handling the produce during all stages of picking, grading, packing and transporting, because any damage may cause more rapid deterioration, greater rotting and a poor general appearance. For example, scratch marks, cracks, bruises or other injury may seem relatively innocuous when fresh, but may later show up as unsightly discolourations at the market. Such wounds also allow entry for harmful organisms, rotting may intensify, and the keeping quality will be reduced. Damage to the wrapper leaves of cabbages and lettuce also detracts from appearance, and results in lower prices being paid, even though the edible parts may not be affected.

Excessive handling of the produce should be avoided, because the more it is handled, the greater the chance of damage. It is partly for this reason that many growers grade and pack certain crops, such as lettuce, cauliflower and cabbage, as they are picked in the land.

Great care should be taken not to soil the market containers in the land, as this adversely affects appearance.

The use of palletisation from farm to sales points, especially the national markets, is gaining in popularity because it protects the crop during transit, and also facilitates and reduces handling.

Trimming and cleaning

Ensure that the product is relatively clean and free of extraneous matter. Old, yellowing, drying or superfluous leaves should be removed. The long wrapper leaves around cauliflower heads may need to be trimmed back to just above the curds. Excessively long fruit stalks on brinjals, pumpkins and green peppers may need to be cut back. Crops such as beetroot, carrot and

potato are often washed before packing, because of the better prices expected for clean, washed produce. Washed products must, however, be dried before packing if later problems are to be avoided.

Grading

All badly diseased, insect damaged, broken or otherwise unmarketable produce should be rejected during sorting. The remainder needs to be sorted into different quality grades, which will meet the requirements of the specific market outlets envisaged.

With most crops there is a wide range of different qualities being produced. Should these be mixed and packed in the same container, the price obtained is likely to be below average, with the poorer quality component tending to determine the price. It is thus generally advisable to sort the produce into various size or quality grades, each of which is packed, labelled and marketed separately. Crops such as onion, potato and tomato are generally graded according to size and quality before being packed. Quality standards have been set, and the farmer's grading as displayed on the ticket may be checked on the market floor by inspectors. In other crops such as cabbage, lettuce and pumpkin, size grading, at least, is practised. It is more desirable to err on the strict side in grading than to be too lenient, particularly for the top grades. Even one or two poor-quality items in a pack detract from appearance, and may result in lower prices being realised.

Grading is largely a matter of common sense. First grade produce should have no, or only a few, minor defects, second grades may have more minor defects, but no major ones, and so on. Consistency in grading is very important if a grower is to develop a good name; standards should not change from one crop to the next. Many satisfied purchasers may contact such growers direct, and order a product sight-unseen, because they are convinced that the grower will always deliver the quality desired.

The uniformity of the pack is extremely important. Produce can be sorted according to size, colour, shape, degree of injury, and general appearance, and each grade packed separately in order to present a uniform appearance. The degree of sorting required will vary according to the type of vegetable and the specific market preference.

Packing

Ensure that first grade vegetables are neatly and tightly packed in suitable packaging. Crops such as tomatoes may be packed according to a specific pattern to suit the size of the product and the dimensions of the container. In the case of carrots marketed in orange mesh pockets, packing the roots lengthwise, in three or four distinct layers, gives a good appearance.

Jumble packs are generally used for the lower grades, or for ungraded produce, and usually obtain lower prices.

The supervisor should ensure that the containers are well-filled, because the purchaser then feels that he is getting full value for his money. For example, a well-filled 10 kg green bean pocket will not sag appreciably when lifted in the middle, whereas the top and toe of a poorly filled pocket may almost meet when lifted in the same manner. Take care, however, not to over-fill or damage the contents. The effect of choice of container on the price of the produce is illustrated in Table 10.

Table 10.

The average prices per kg of various packs of green beans on the Johannesburg National Market during 1990 and 1991.

Container	Kg per Container	% Of Total Deliveries		Green Beans (R/kg)
		1989/90	1990/91	
Mesh Pocket	10	2,57	2,20	0,69
Banana Box	20,4	13,57	14,92	0,91
Carton	5	76,14	73,54	1,57
Flat Tray	2,5	0,06	0,01	1,78
Tomato Box	4	0,05	0,06	2,02
Pre-packs	5	7,61	9,26	2,73

The specific colour of the container used is also important. For example, a green mesh pocket for green beans, an orange-coloured pocket for carrots and a white pocket for white garlic, tend to enhance the colour of the respective contents. This improves the visual appeal of the product. Other colours may detract from general appearance and result in lower prices. Green beans packed in an orange-coloured pocket, for example, appear old and over-mature.

The size of the container is also an obvious point to consider. Here the successful introduction of the 10 kg potato pocket, instead of the old 15 kg pocket, serves as a good example. The growing demand for small pre-packs, at premium prices, also illustrates this point. The housewife prefers to purchase a package or bag she can handle without undue discomfort.

All containers used should be clean and blemish free. Dirty or stained containers almost guarantee lower prices, regardless of the quality of the contents. The use of cartons, which better protect the contents, is also increasing at the expense of mesh pockets for many vegetables. Using bright, colourful, attractive labels on cartons and other containers also improves the general appearance of the consignment, and may improve prices and profitability. A top-quality product is more likely to be remembered by a very satisfied consumer if the container is distinctly marked.

The varying cost of the different containers must also be taken into account; the additional cost of more expensive containers must be more than covered by the expected higher prices obtained for the product. Many retail outlets resell the products loose. The use of the 9 kg tomato box, instead of the traditional 6 kg, may be advisable here. Great cost savings in packaging may be made by direct deliveries to these, and other bulk consumers, in re-usable containers.

Transporting

Ensure that the produce is not loaded too deeply, resulting in the bottom layers being damaged.

Handle gently at all times when loading and unloading.

Adjust speed according to road conditions.

Tie the load down securely to prevent it from shifting.

Ensure adequate ventilation when long trips are undertaken, especially in hot weather.

Protect the load from sun, wind, rain, cold and dusty conditions during transit.

Marketing

It may be advisable to consign only the top grades to the best market, with lower grades being sent to other markets. This reduces competition, which can depress prices.

As a general rule, produce should be marketed as soon as possible after harvesting. To preserve a fresh appearance, keep delays to a minimum. With very perishable products, rapid marketing is essential.

Different markets have different quality specifications. Hawkers, who sell in small packs, for example, may require medium to small tomatoes for various practical reasons. Hostels, hotels and other bulk consumers may prefer large fruits. Black consumers generally prefer large cabbage heads, while white households tend to prefer smaller ones. Indian consumers often prefer processing tomatoes, probably because of their better keeping quality and higher solids content, whereas white and black consumers tend to prefer the "table" tomato. A detailed study of the various market outlets, getting to know the market preference of each market and meeting their quality requirements, is most important for financial success.

The grower's market agent must be consulted for an objective opinion on the quality and presentation of the produce. He / she is on the floor and deals directly with the discriminating buyer. The agent draws a clear idea of the demand for appearance and size of the produce. Perhaps more importantly, the agent is likely to pick up defects in the produce which may cause downgrading, so that the grower may identify problematic handling areas between field harvest and arrival on the floor of the market.

THE FUTURE

The expectation is that the quantities of vegetables offered for sale are likely to increase dramatically over the next few years. The increasing demand, especially from the informal sector of the economy, is expected to increase competition. The importance of producing a good quality product will then be even greater than it is at present. Many growers have entered, or are investigating, the export market for various products. Wherever the export market is located, only produce of excellent quality is acceptable and profitable.