Fundamental Analysis of Commodities

In a market economy, price is determined by the interaction of supply and demand. The study of supply and demand is also known as the study of fundamentals or "fundamental analysis". In this section you will learn how to estimate a market price for commodities using the law of supply and demand as reflected in the "stocks to use ratio". The stocks to use ratio is a closely watched figure in when establishing asking prices for commodities. In order to understand stocks to use, you must understand the economic theory of supply and demand. Supply and demand graphs are useful tools used to illustrate this concept.

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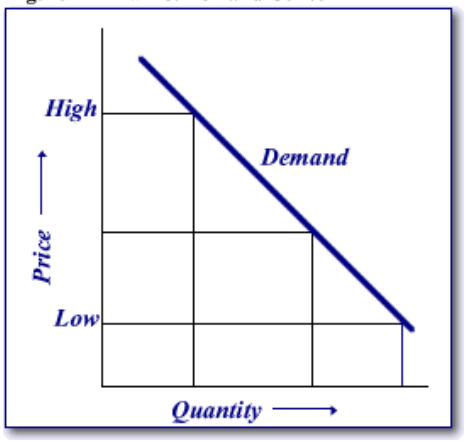
1. Law of Demand and Fundamental Analysis of Commodity Markets

The law of demand and it's application to fundamental analysis of commodities rests upon an understanding of consumer behaviour. The factors which characterize consumer choice, and how individual consumer responses are reflected in the market place are key components of this economic theory. Understanding what factors have affected demand in the past will help to develop expectations about demand in the future and the impact on market price.

Figure 1 Market Demand Curve



Demand for a particular product or service represents how much people are willing to purchase at various prices. Thus, demand is a relationship between price and quantity, with all other factors remaining constant. Demand is represented graphically as a downward sloping curve with price on the vertical axis and quantity on the horizontal axis (figure 1)

Generally the relationship between price and quantity is negative. This means that the higher is the price level the lower will be the quantity demanded and, conversely, the lower the price the higher will be the quantity demanded. Market demand is the sum of the demands of all individuals within the marketplace. Market demand will be affected by other variables in addition to price, such as various value added services including handling, packaging, location, quality control, and financing. Thus the demand for an agricultural commodity is typically derived from the demand for a finished product.

It is important for you to understand that a free market economy is driven not by producers but by consumers. Ultimately the market value for any good or service is determined by its value to the consumer. Higher prices mean higher profits and higher profits provide you with the incentive and the means to expand production of those goods and services that consumers value the most. So profit driven expansion is the market's response to stronger buyer demand. On the other hand, when consumers are unwilling to buy what is offered at the current price, the seller will have to lower the price ultimately resulting in lower profits or losses to you the producer. Losses reduce the producer's incentive to produce things that have weak demand which will ultimately force production cuts as farmers lose more and more money.

This is the discipline of the marketplace. Those who produce things that consumers are willing and able to buy are rewarded. Those who produce things that consumers don't want or can't buy are penalized. Farmers must produce for the markets. They cannot expect to find or create a profitable market for whatever they choose to produce.

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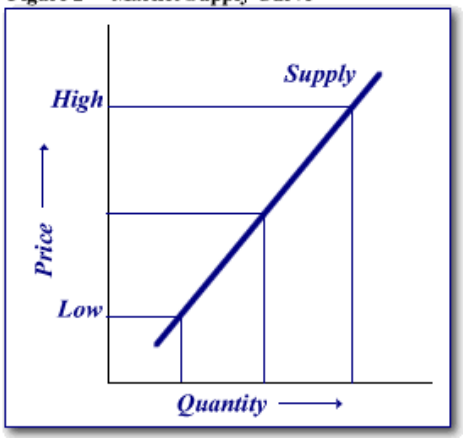
2. Law of Supply and Fundamental Analysis of Commodity Markets

Supply joins demand as one of the components of fundamental commodity market analysis. Supply characteristics relate to the behaviour of firms in producing and selling a product or service. An understanding of the factors affecting supply in the past will help with the development of supply expectations in the future and the impact upon market price.

The law of supply can be approached from two different contexts. The first is that it represents the sum total of production plus carryover stocks. The other context for supply describes the behaviour of producers. The market or total supply represents the quantities producers are willing to sell over a range of prices for any given time period. At the individual level, you may be willing to produce a given product as long as the market price is equal to or greater than the cost of producing that product. The total supply is the sum of the individual quantities of

product that each farmer brings to the market.
Market supply is represented by an upward sloping curve with price on the vertical axis and quantity on the horizontal axis (figure 2)

Figure 2 Market Supply Curve



An increase in price in most instances will result in farmers wanting to increase the quantity of a given product they will bring to the market, therefore the relationship between the price and supply is positive. Market supply will be affected by other variables in addition to the price. Factors that have been identified as important in determining supply behaviour include; the number of firms producing the product, technology, the price of inputs, the price of other commodities which could be produced, and the weather.
With higher prices the producers of goods and services will receive greater profits. Greater profits will result in the means to expand production increasing the supply. This increased supply will ultimately satisfy the existing demand such that any additional production must be met with new demand in order for the price increases to be sustained. The firms which handle your grain or livestock products are not free to set prices as they choose. They can raise prices only if consumers are willing and able to pay more. The law of supply, as was the case with demand, illustrates the discipline of the marketplace. The market doesn't care what it costs you to produce something. Lower prices are the market's signal to farmers that they have produced too much of something or that it is something consumers do not want. To be a good marketer, you need to accept the "discipline of the marketplace.' A good marketer learns to produce for the market.
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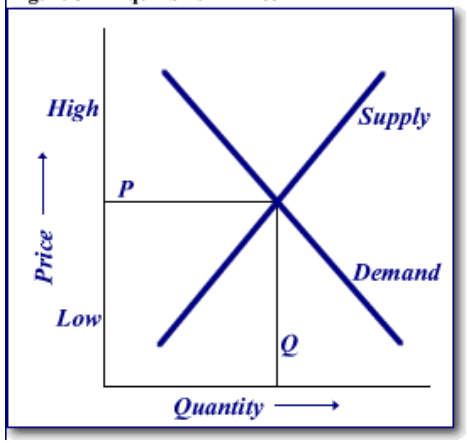
3. How Supply and Demand Determine Commodities Market Prices

Price is derived by the interaction of supply and demand. The resultant market price is dependant upon both of these fundamental components of a market. An exchange of goods or services will occur whenever buyers and sellers can agree on a price. When an exchange occurs, the agreed upon price is called the "equilibrium price", or a "market clearing price" . This can be graphically illustrated as follows: (Figure 3)

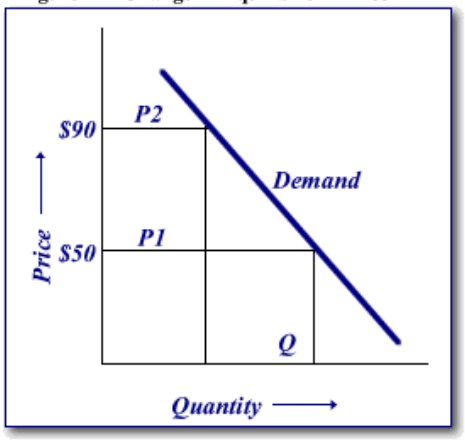
Figure 3 Equilibrium Price



In figure 3, both buyers and sellers are willing to exchange the quantity "Q" at the price "P". At this point supply and demand are in balance or “equilibrium". At any price below P, the quantity demanded is greater than the quantity supplied. In this situation consumers would be anxious to acquire product the producer is unwilling to supply resulting in a product shortage. In order to ration the shortage consumers would have to pay a higher price in order to get the product they want; while producers would demand a higher price in order to bring more product on to the market. The end result is a rise in prices to the point P, where supply and demand are once again in balance. Conversely, if prices were to rise above P, the market would be in surplus - too much supply relative to the demand. Producers would have to lower their prices in order to clear the market of excess supplies. Consumers would be induced by the lower prices to increase their purchases. Prices will fall until supply and demand are again in equilibrium at point P.

A market price is not a fair price to all participants in the marketplace. It does not guarantee total satisfaction on the part of both buyer and seller or all buyers and all sellers. This will depend on their individual competitive positions within the market. Buyers will attempt to maximize their individual well being within certain competitive constraints. Too low a price will result in excess profits for the buyer attracting competition. Likewise sellers are also considered to be profit maximizers. Too high a price will likewise attract additional producer competition within the market. Therefore, there will exist different price levels where individual buyers and sellers are satisfied and the sum total will create a market or equilibrium price.

Figure 4 Change in Equilibrium Price



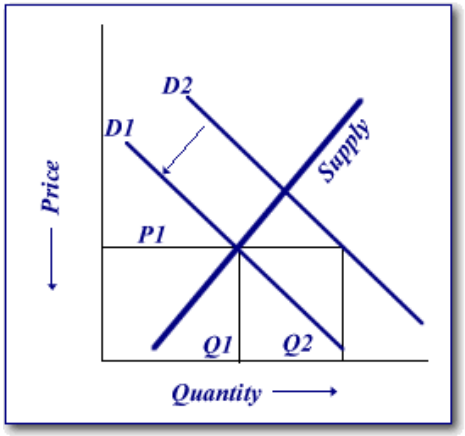
When either demand or supply changes, the equilibrium price will change. For example, good weather normally increases the supply of grains and oilseeds, with more product being made available over a range of prices. With no increase in the quantity of product demanded, there will be movement along the demand curve to

a new equilibrium price in order to clear the excess supplies off the market. Consumers will buy more but only at a lower price. This can be illustrated graphically as follows: (see Figure 4.)

Likewise a shift in demand due to changing consumer preferences will also influence the market price. In recent years there has been a shift in demand on the part of overseas Canadian wheat buyers toward the Canada Prairie Spring varieties, away from the Hard Red Spring varieties. A decline in the preference for Hard Red Spring wheat shifts the demand curve inward, to the left, as illustrated in figure 5.

With no reduction in supply, the effect on price results from a movement along the supply curve to a lower equilibrium price where supply and demand is once again in balance. In order for prices to increase producers will have to reduce the quantity of hard red spring wheat brought to the market place or find new sources of demand to replace the consumers who withdrew from the marketplace due to changing preferences or a shift in demand.

Figure 5 Shift In Demand



Changes in supply and demand can be short run or long run in nature. Weather tends to influence market prices generally in the short run. Changes in consumer preferences can have either a short run or long run effect on prices depending upon the goods or services, for example whether they are luxuries or necessities. A luxury good may enjoy a short term shift in demand due to changing styles or snob appeal while necessities tend to have stable or long run demand curves. Another major factor influencing market prices is technology. A major effect of technology in agriculture is to shift out the supply curve rapidly by reducing the costs of production on a per unit basis. At the same time if total demand does not increase sufficiently to absorb the excess goods produced at lower costs, the long run impact of technology on the market place will be to lower prices. The rapidly shifting supply curve coupled with a slower moving demand curve has generally contributed to lower prices for agricultural output when compared to prices for industrial products.

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4. Stocks to Use Ratio

The Stocks to Use Ratio is a convenient measure of supply and demand interrelationships of commodities. The stocks to use ratio indicates the level of carryover stock for any given commodity as a percentage of the total demand or use. The mathematical formula for this relationship is as follows

Beginning Stock + Total Production — Total Use

Total Use

This can be simplified by consolidating the upper portion of the relationship to:

$$\frac{\textit{Carryover}}{\textit{Total Use}} \times 100 = \textit{Stocks To Use Ratio}$$

Using the long hand formula, beginning stocks represent the previous year's ending or carryover inventories. Total production represents the total grain produced in a given year. Total usage is the sum of all the end uses in which the stock of grain has been consumed. This would include human consumption, export programs, seed, waste, dockage and feed consumption. By adding carry-over stocks to the total production you will obtain the total supply. From the total supply, subtract the total use and the resultant figure will be the year ending carryover stock. The carryover stock divided by the total usage can be expressed as a ratio which when compared with previous years gives the market analyst an indication of the relative supply/demand balance for a particular commodity. This ratio can then be used to indicate whether current and projected stock levels are critical or plentiful.The ratio can also be used to indicate how many days of supply is available to the world marketplace under current usage patterns.(eg. a 20% stocks to use ratio for wheat indicates that there are 75 days supply of wheat in reserve)

By comparing the current year's stocks to use ratio with years when carryover stocks were below normal as well as years when carryover stocks were above normal , you will be able to develop an estimate as to the direction of the price trend as well as the probable extent of price change whether higher or lower. Some bench mark ratios can be established for various crops by reviewing historical stocks to use data. On a world basis a stocks/use ratio for wheat under 20% has typically led to strong price advances. For corn, the comparable number appears to be under 12% . For soybeans, the critical level is below 10%. It is useful to calculate stocks to use ratios for different crops and compare these projections with historical averages provided by the Canada Grains Council Statistical Handbook, as well as other publications such as the USDA situation and outlook reports, and Specialty Crop Publications. By reviewing past data and estimating the current year's stocks/use ratios on a crop by crop basis, appropriate production/marketing strategies can be developed.

Example: Canola				
Year	**Beginning Stock**	**Total Production**	**Total Use**	**Carryover Stock**
1983/84	486	2,599	2,965	120
1990/91	749	3,266	3.635	380
10-year Average	623	3,407	3,425	605
Stocks to Use Ratio				
1983/84	$\frac{486+2599-2965}{2965}$ = 4%		Ave. Vancouver Cash	
Year 1990/91	$\frac{486+2599-2965}{2965}$ = 4%		Ave Vancouver Cash Price: $287.20	
10-year Average	$\frac{486+2599-2965}{2965}$ = 4%		10-year Ave. Cash Price: $324.69	

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5. Why is Chart Analysis So Important?

Is there a pattern to commodity prices? Can you predict future prices based upon past performance? These questions are ones every commodity market participant wonders about. To answer these questions requires study of the factors that influence market prices. To accomplish this task there are two methods available to the market analyst, fundamental and technical.

Fundamental analysis is based upon the traditional study of supply and demand factors that cause prices to rise or fall. Such factors include drought, flood, war, politics, exchange rates, inflation and deflation. The previous section on supply & demand and stocks/use ratios are methods used by fundamentalists to arrive at an estimate of the equilibrium market price of a commodity over time in order to determine if the current market price is over or undervalued.

Technical or chart analysis, by contrast, is based upon the study of the market action itself. While fundamental analysis studies the reasons or causes for prices going up or down, technical analysis studies the effect of the price movement itself. Technical analysts claim that markets do trend and that by charting market prices you can control commodity price risk management. They further claim that by combining the use of price charts with appropriate marketing tools and pricing strategies can have a major positive impact on your profitability and, therefore, the long term survival of your business. Charting can be used by itself with no fundamental input, or in conjunction with fundamental information. You will find that as you become more skilled in charting and technical analysis, that the illusion of randomness in the commodity market will gradually disappear. This will lead to more confidence in making those very crucial marketing decisions.

In this section of the course you will learn what technical theory is, how to construct daily, weekly, and monthly bar charts. You will also explore the basic concepts of trend, trend-lines, price support, price resistance, volume and open interest. Finally you will learn how to use all of these tools to confirm price action or to warn of impending price trend changes as you do some price forecasting of your own.

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6. What is Technical Theory?

The ability to make commodity price forecasts is only the first step in the price decision making process. The second, and often more difficult step, is market timing. Since commodity futures markets are so highly leveraged (initial margin requirements are generally less than 10% of a contract's value), minor price moves can have a dramatic impact on trading performance. Therefore, the precise timing of entry and exit points is an indispensable aspect of any market commitment. Timing is everything when dealing in the commodities markets, and timing is almost purely technical in nature. This is where a practical application of charting principles becomes absolutely essential in the price forecasting and risk management process.
There are three basic assumptions on which technical analysis is based:

1. The futures market discounts everything.

The technician believes that the price posted on the board of a commodity exchange at any given time is the intrinsic value of the commodity based upon the fundamental factors affecting the supply and demand of the product. Therefore, if the fundamentals are already reflected in the price, market action (charts- price, volume, open interest) is all that is needed to be studied to forecast future price direction. Although not knowing the specifics of the fundamental news, the technician indirectly studies the fundamentals by studying the charts which reflect

the fundamentals of the marketplace.

2. Prices move in trends

Prices can move in one of three directions, up, down or sideways. Once a trend in any of these directions is in effect it usually will persist. The market trend is simply the direction of market prices, a concept which is absolutely essential to the success of technical analysis. Identifying trends is quite simple; a price chart will usually indicate the prevailing trend as characterized by a series of waves with obvious peaks and troughs. It is the direction of these peaks and troughs that constitutes the market trend.

3. History repeats itself

Technical analysis includes the psychology of the market place. Patterns of human behavior have been identified and categorized for several hundred years and are repetitive in nature. The repetitive nature of the marketplace is illustrated by specific chart patterns which will indicate a continuation of or change in trend.

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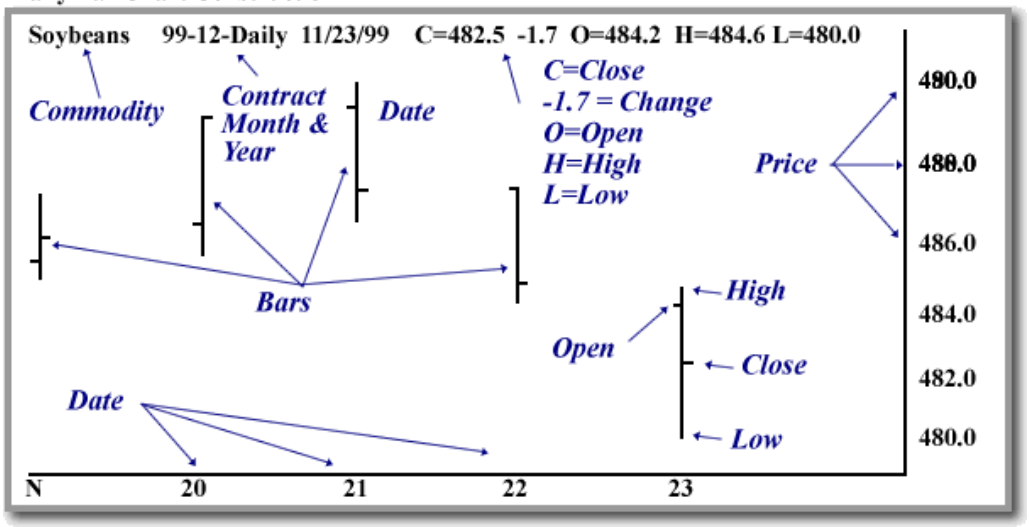
How to Construct a Bar Chart

The bar chart is the type of chart most commonly used by technical analysts. The horizontal scale on the bottom of the chart indicates the passage of time. The time scale can be anywhere from minutes to years, with the most popular scale being the daily bar chart, the weekly bar chart and the monthly bar chart. The daily bar chart indicates the range of prices for one day's trade, as measured on the vertical scale of the chart. The "bar" is the range of price for a particular time period; for a daily bar chart, the top of the bar represents the highest value for the day while the bottom of the bar represents the lowest value for the day. Attached to the bar are two tics, one extending to the left and one extending to the right. The left tic represents the opening price for the trading day and the right tic represents the closing or settlement price for the day.

Daily Bar Chart Construction



The daily bar chart is used for short term marketing decisions, and is extremely useful for timing entry and exit points when designing a marketing strategy. (for example when to trigger a hedge position when profitable prices are available or where to place a protective stop on a speculative position)

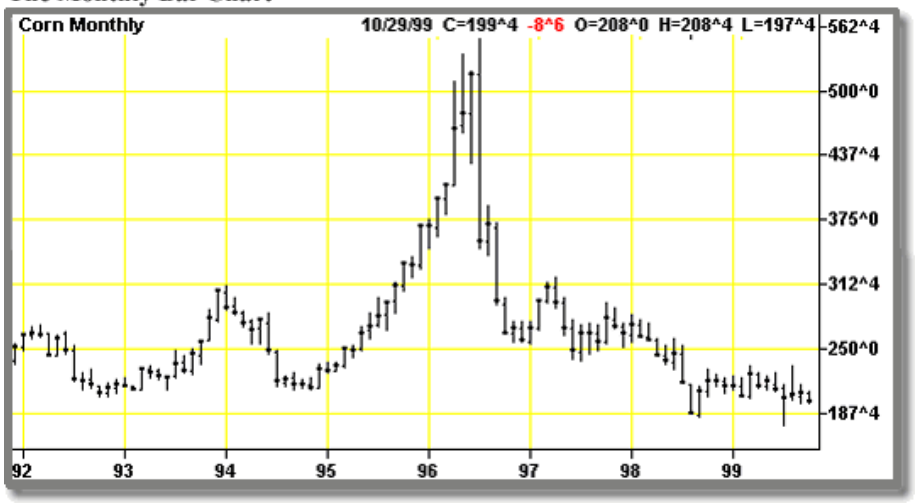
The Weekly Bar Chart

For a weekly chart the price range is for one week, Monday to Friday. If a holiday occurs during the week only the data available for the week is used. The top of the bar represents the highest value for the week and the bottom of the bar represents the lowest value for the week. The tic to the left is the opening price for the first trading day of the week, usually Monday, and the tic to the right is the settlement price usually the close of trade on Friday.

The monthly chart includes the range of trade for an entire month, from the first trading day of the month to the last trading day of the month, with the opening and closing prices being the values for the first and last day of the trading month respectively.

The weekly and monthly charts are used for a longer term perspective of the markets, and are extremely useful for market planning purposes. For example, if market prices as indicated on the monthly chart are at historical lows, sales of commodities should be delayed while if prices are historically high, a more aggressive approach to marketing would be undertaken.

The Monthly Bar Chart



Two other important pieces of information are usually included on a bar chart - Volume & Open Interest.

Volume represents the total amount of trading activity that took place in a commodity for a period of time, one day on a daily bar chart, one week on a weekly bar chart, and one month on a monthly bar chart. The volume is plotted as a vertical bar extending upward from the bottom of the chart, directly under the price bar for that day. The further the volume bar extends upward into the chart the more trading volume has taken place.

Open interest represents the total number of outstanding or unliquidated contracts in a commodity at the end of a trading day. A purchase and a sale are required to establish a contract position, thus the open interest is the total of either the outstanding purchases or sales, not both.

Open interest is plotted as a solid line above the volume bars on the price chart, with a vertical scale indicating the total number of contracts outstanding.

Bar Chart with Volume and Open Interest

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Commodity Trend Analysis - Support & Resistance

There are two components to trend, direction and duration. Markets trend in three directions, up, down and sideways. Markets do not move consistently in one direction, but tend to be erratic. Within this erratic behaviour a trend will be present. Trends are characterized by a series of peaks and troughs. An uptrend is a series of rising peaks and troughs, a downtrend shows a series of descending peaks and troughs. A sideways tend is a series of horizontal peaks and troughs, with prices moving within a range, failing to make new highs at the top of the price range and failing to make new lows at the bottom of the price range.

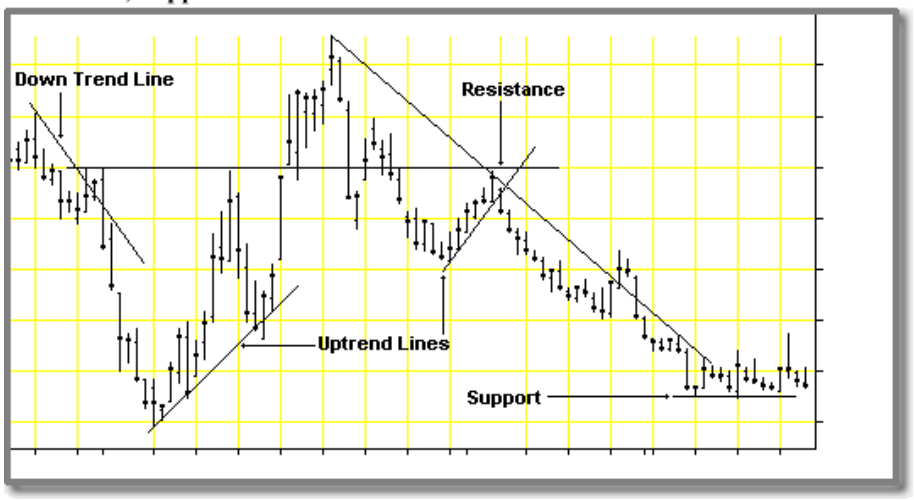
Trend duration is also made up of three time periods; major, intermediate and minor. The major trend will have a duration of six to eight months or longer and is best illustrated by weekly and monthly bar charts. Within the major trend significant corrections or reversals of trend will be present; these would be intermediate and minor trends within the major trend. The intermediate trend lasts from three weeks to three months, and the minor trend is anything less, from two to three weeks in duration.

Support and resistance are tools used by technicians to help them identify and follow price trends. Horizontal lines are drawn on the bar chart to indicate areas of support and resistance. The troughs or reaction lows on a price chart are identified as support. Support is an area on the chart where buying pressure overtakes selling pressure and the market reacts higher. Usually support is identified by a previous reaction low or trough on the bar chart. Resistance is an area on the chart where selling pressure overtakes buying pressure and the market reacts lower. A resistance level is identified by a previous price high or peak on the bar chart.

The concepts of support and resistance are critically important tools used by technicians to help them identify and follow trends. Lines are drawn on the chart to indicate areas of price support, price resistance and price trends. In an uptrend, the resistance levels represent pauses in the uptrend which serve to temporarily halt the price advance. In like manner, in a downtrend, support levels will temporarily halt a price decline. Trend lines are drawn above or below the market action

depending upon the direction of the move. During an uptrend a line would be drawn from the first significant low to the next, extending across the page from left to right. (see example 5) If the uptrend is valid you will find the price will move to, or close to, the uptrend line on corrections and then move higher. Each time a trend line is tested and holds, the more significant it becomes. Each time a previous support or resistance level is being tested the prevailing trend of the market is critically analyzed by the technician. Failure to exceed a previous resistance peak in an uptrend, or to break a previous support low in a downtrend, provides a warning that the existing trend may be changing. The testing of these support and resistance levels form pictures on the charts that suggest either a trend reversal or simply a pause in the prevailing trend. The basic building blocks on which price patterns are based however, are *support and resistance*.

Trendlines, Support & Resistance



Support and resistance levels reverse roles once they are decisively broken . In other words if the price penetrates a resistance level, then it will generally move upward to the next resistance level, such that the previous resistance level will now become an area of support. The longer the period of time that prices trade in a support or resistance area, the more significant that area becomes. For example, if prices trade sideways for three weeks in a support area before moving higher, that support area would be more significant than if only three days of trading had occurred. The reason for this is that there are now more participants in the market with a vested interest in that support area which will hold prices up.

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Understanding Volume & Open Interest in Commodity Futures

Technicians utilize a three dimensional approach to market analysis which includes a study of price, volume and open interest. Of these three, price is the most important. However, volume and open interest provide important secondary confirmation of the price action on a chart and often provide a lead indication of an impending change of trend. For beginning students of the market these two concepts tend to be somewhat confusing but are very important concepts to understand in- undertaking a thorough analysis of market action. Volume represents the total amount of trading activity or contracts that have changed hands in a given

commodity market for a single trading day. The greater the amount of trading during a market session the higher will be the trading volume. As mentioned earlier, a higher volume bar on the chart means that the trading activity was heavier for that day. Another way to look at this, is that the volume represents a measure of intensity or pressure behind a price trend. The greater the volume the more we can expect the existing trend to continue rather than reverse. Technicians believe that volume precedes price, meaning that the loss of upside price pressure in an uptrend or downside pressure in a downtrend will show up in the volume figures before presenting itself as a reversal in trend on the bar chart.

Open Interest is the total number of outstanding contracts that are held by market participants at the end of each day. Where volume measures the pressure or intensity behind a price trend, open interest measures the flow of money into the futures market. For each seller of a futures contract there must be a buyer of that contract. Thus a seller and a buyer combine to create only one contract. Therefore, to determine the total open interest for any given market we need only to know the totals from one side or the other, buyers or sellers, not the sum of both. Each trade completed on the floor of a futures exchange has an impact upon the level of open interest for that day. For example, if both parties to the trade are initiating a new position (one new buyer and one new seller), open interest will increase by one contract. If both traders are closing an existing or old position (one old buyer and one old seller) open interest will decline by one contract. The third and final possibility is one old trader passing off his position to a new trader (one old buyer sells to one new buyer). In this case the open interest will not change. By monitoring the changes in the open interest figures at the end of each trading day, some conclusions about the day's activity can be drawn. Increasing open interest means that new money is flowing into the marketplace. The result will be that the present trend (up, down or sideways) will continue. Declining open interest means that the market is liquidating and implies that the prevailing price trend is coming to an end. A knowledge of open interest can prove useful toward the end of major market moves. A levelling off of steadily increasing open interest following a sustained price advance is often an early warning of the end to an uptrending or bull market. The relationship between the prevailing price trend, volume, and open interest can be summarized by the following table.

Price	Volume	Open Interest	Interpretation
Rising	Rising	Rising	Market is Strong
Rising	Falling	Falling	Market is Weakening
Falling	Rising	Rising	Market is Weak
Falling	Falling	Falling	Market is Strengthening

It is important to understand that the commodity price chart only records the data. In itself, it has little value. By monitoring the price trend, volume and open interest the technician is better able to gauge the buying or selling pressure behind market moves. This information can be used to confirm a price move or warn that a price move is not to be trusted. This will provide you with valuable information to develop a suitable pricing strategy and an appropriate production-marketing plan for your farming operation.

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Chart Patterns & Technical Analysis of Commodities

One of the major premises of technical analysis is that *history repeats itself*. For the technician the recurrence of identifiable patterns and formations that have preceded important movements of the market in the past provide important clues as to the probable direction of price movement in the future. Chart patterns are formations that appear on the charts which provide you with forecasting tools of impending price movement. Some patterns are more reliable than others for price forecasting. . **None of the chart patterns are infallible**. They have a high probability of success but are not guaranteed to work all of the time. Technicians must always be on the alert for chart signs that prove their analysis to be incorrect. After trend lines, support and resistance lines have been drawn on a chart, one of the most important and most difficult decisions you will have to make is determining

the timing of entering and exiting the market as well as determining when a major top in a rising market or a major bottom in a declining market has occurred.

There are two types of patterns that develop on charts, the *reversal pattern* and the *continuation pattern*. Reversal patterns indicate that an important reversal in trend is taking place. Knowing where certain patterns are most likely to occur within the prevailing trend is one of the key factors in being able to recognize a chart pattern. Some of the most common reversal patterns include; *the head and shoulders top and bottom, double tops and bottoms, triple tops and bottoms, key reversals, island reversals, rounding bottoms and tops, "V" formations or spike bottoms and tops*. There are a few important points to be considered which are common to all of these reversal patterns.

1. The existence of a prior major trend is an important prerequisite for any reversal pattern.
   If a price pattern has not been preceded by an existing trend, there is nothing to reverse and the pattern would therefore be suspect. Knowing where chart patterns are most likely to occur within a price trend is one of the key factors in identifying price patterns.
2. The first signal of an impending trend reversal is often the breaking of an important trend line.
   The breaking of a major trendline signals a change in trend, not necessarily a trend reversal. The breaking of an uptrend line might signal the beginning of a sideways trend which may later form either a reversal or continuation pattern.
3. The larger the pattern the greater is the price movement potential.
   The height of the pattern measures the volatility, the width of the pattern measures the amount of time required to build and complete the pattern. The greater the height of the pattern (the volatility) and the longer it takes to build - the more important the pattern becomes and the greater the potential for the ensuing price move.
4. Topping patterns are usually shorter in duration and more volatile than bottoms.
   Price swings at major tops are wider and more violent. Tops usually take less time to form than bottoms. For this reason it is usually less risky to identify and trade bottoms than tops however the time spent in establishing a top is generally shorter than the time spent establishing a market bottom. Therefore, a market manager can generally do better by trading the downside of the market rather than the upside of the market. This has important implications for farm managers, due to the fact that the natural tendency is to trade the former rather than the latter.
5. Volume is usually more important on the upside
   Volume should generally increase in the direction of the market trend and is an important confirming factor in the completion of all price patterns. The completion of each pattern should be accompanied by a noticeable increase in volume, particularly at market bottoms. Market tops tend to fall on their own weight once a trend reversal is underway. At a market bottom, if the volume pattern does not show a significant increase following the upside breakout, the entire price pattern should be questioned. The second type of chart pattern is the continuation pattern. Continuation patterns suggest that market is only pausing for a while before the prevailing trend will resume. Another difference between reversal and continuation patterns is their time duration. Reversal patterns usually take much longer to form on the chart and represent major changes in trend. Continuation patterns, on the other hand, are usually shorter-term in duration and are often classified as intermediate term chart patterns. Some of the most common continuation patterns include; flags, ascending and descending triangles, symmetrical triangles, pennants, gaps, and rectangles.
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Commodity Spreads

Commodity spreads (or straddles) measure the price difference between two different contracts, usually futures contracts. Spreads can also measure the difference between a cash contract and a futures contract (referred to as the basis) or the price difference between two option contracts, or various combinations of the above. For the purpose of this section you will examine spreads from the context of the price difference between two different futures contracts.(see figure 6)

In the grain business the difference between two contract months of the same commodity (ie., canola) represents the carrying charges or the cost of holding the commodity for a period of time. Carrying charges are determined by

the cost of interest and storage when physical commodities are held in store. Grain traders will monitor spread relationships very closely as the relative difference between various contract positions will determine the handling margins or profitability of their involvement in marketing grain. When using spreads, the trader hopes to profit by changes in the spread (difference) between the two contracts . The trader is looking for either a widening or narrowing of the spread relationship over time. Spread trading is considered to be a less risky and often less expensive way in which to participate in the futures market. Margin requirements for spreads are generally lower than outright long or short positions, and whether the price increases or decreases the traders risk is limited to the change in the spread, since both a long and a short position are held at the same time. Since the risk is lower, so will be the potential for profit or loss. Spread trading is more complicated than outright trading and requires a higher degree of sophistication on the part of the trader. You will examine only briefly the application of spread trading to farm marketing management in this course. The purpose of this section is to familiarize yourself with the use of commodity spreads in forecasting market direction. By monitoring the relative strength between various contracts and between different markets, you will be better able to select the appropriate pricing and risk management strategies when developing your marketing plan.

Besides being used for spread trading, tracking the spread relationships between different contracts in the same market or in different markets can provide useful insights into future price direction. The relationships between the nearby and the distant months in the same commodity often tell us about the relative strength or weakness of the market itself. For example; the June 1993 Canola contract traded at a substantial premium to the November, 1993 contract up until May 1993. A perceived shortage of top quality canola following the frost of August 1992 resulted in 1992 canola values gaining on the 1993 contract positions. This relationship continued until it became apparent later in the marketing year that an adequate supply of canola was available to satisfy buyer's needs in addition to farmers' requirements for cash flow prior to seeding a new crop. The spread relationship between the two different marketing years then reversed direction, as buyers and sellers focused their attention on the upcoming 1993/94 canola production prospects.

Spread

In situations such as this, caused by perceived tightness of stocks, the nearby months will usually rise faster than the distant months. This is referred to as a bull spread. In order to profit from this relationship you would buy the nearby futures contract and simultaneously sell the more distant contract. Conversely in situations where the near term supplies are in relative over abundance in relation to future supplies, the nearby months will usually fall faster than the distant months. A bearish approach to the market would be undertaken by entering a bear spread. In order to profit from this relationship you would sell the nearby contract month and buy the distant contract month. By monitoring the relationship between the nearby and the distant months, you often will be provided with a lead indication as to whether the market will trend higher or lower.

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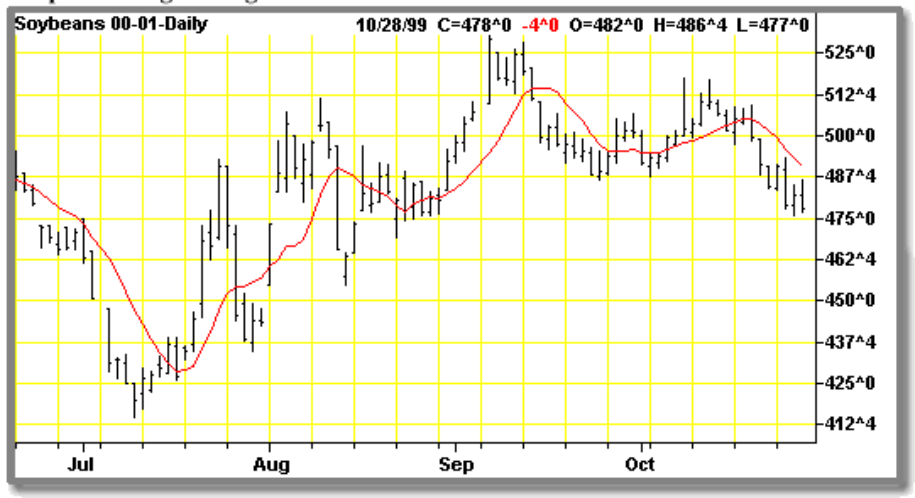
Technical Indicators and Commodities

Technical indicators are additional tools used by the technician in order to develop commodity price forecasts. In this section you will examine a few of the more popular technical indicators used to supplement the basic analytical tools of support, resistance and trendlines. These include; moving averages and oscillators.
The moving average is a trend following indicator which is easy to construct and one of the most widely used mechanical trend following systems used. A moving average, as the name suggests, represents an average of a certain body of data that moves through time. The most common way to calculate the moving average is to work from the last 10 days of closing prices. Each day, the most recent close (day 11) is added to the total and the oldest close (day 1) is subtracted. The new total is then divided by the total number of days (10) and the resultant average computed.
The purpose of the moving average is to track the progress of a price trend. The moving average is a smoothing device. By averaging the data, a smoother line is produced, making it much easier to view the underlying trend. The decision as to what time period to include (10 day, 30 day, 40 day) as well as the type of chart (daily, weekly, or monthly) is a subjective one that you will have to make for yourself. If a shorter time period is used (ie., 10 day moving average), the resultant trend line will exhibit a greater degree of trend variation than a longer term moving average, such that the underlying trend may be more difficult to determine. If a longer term moving average is employed (ie., 40 day moving average) the time lag between the transformation from an uptrend to a downtrend will be delayed long after the change of price trend is underway. In some markets, it is more advantageous to use a shorter term moving average, and in others, a longer term average proves to be more useful. Generally the closing price is used to compute the moving average, however opening, high, low and mid point of the trading range values can also be selected. Several types of moving averages can be calculated. Some analysts believe that a heavier weighting should be given to the most recent data and in an attempt to correct this problem, construct other types of moving avenges such as the linearly weighted and exponentially smoothed moving average. The most common application is the simple moving average as discussed above.
In a simple moving average each day's price receives equal weight. The moving average is plotted on the bar chart on top of the appropriate trading day and along with that day's price action. When the daily closing price moves above the moving avenge a buy signal is generated. When the daily closing price moves below the moving average a sell signal is generated.

Simple Moving Average



If a very short term moving average is employed, numerous crossovers will occur such that the trader may be exposed to many false signals and higher commission costs of trading. If a longer term moving average is used the trader may be too slow in responding to a change in trend, forsaking much of the profit potential. A shorter

term moving avenge works best in a sideways trending market, allowing the trader to capture more of the shorter swings. A longer moving avenge works best in trending markets, allowing the trader to stay with the trend and minimizing the chance of getting caught in short term corrections. The correct approach is to use a shorter average during non-trending periods and a longer average during trending periods.

Moving averages are trend following systems which do not have forecasting capabilities. They are used only to help in identifying the underlying trend and as an aid in entering and exiting the market. One of the greatest advantages in using a moving average is that by nature it follow the trend and by selecting a suitable time period, allows profits to run and losses to be cut short. This system works best when markets are trending. During choppy or sideways markets a non trending method such as an oscillator will yield better results.

An oscillator is an extremely useful tool that provides the technical trader with the ability to trade non-trending markets where prices fluctuate in horizontal bands of support and resistance. In this situation, trend following systems such as the moving average do not perform satisfactorily, as many false signals are generated. The oscillator can also be used to provide the technician with an advance warning of short term market extremes, commonly referred to as overbought and oversold conditions. Oscillators provide a warning that a trend is losing momentum before the situation becomes apparent in the price action which is referred to as divergence. As is the case with other types of technical tools there are times when oscillators are more useful than others and they are not infallible.

The concept of momentum is the most basic application of oscillator analysis. Momentum measures the rate of change of prices by continually taking price differences for a fixed time interval. The formula for momentum is:

M= C-Cx

Where C is today’s market close and Cx is the close “x" days prior. To construct a 10 day momentum line, today’s closing price is subtracted from the closing price 10 days ago. If the most recent closing price is lower than the closing price 10 days prior, a negative number will be generated. Conversely if today's closing price is higher than the closing price 10 days ago a positive number will be generated. These values are then plotted on the top or bottom of the bar chart with a horizontal zero line in the middle. As with the moving avenge, the number of days chosen to compute the oscillator can vary, with shorter term oscillators (5 day) producing a more sensitive line with more pronounced oscillations. A longer term oscillator (20 days) produces a smoother line in which the oscillator swings are less pronounced.

Simple 10-bar Oscillator

By plotting price differences over a fixed period of time, the technician is studying rates of change in price trends. If prices are rising and the momentum line is above zero and rising, an accelerating uptrend would be in place. If the momentum line begins to flatten out, the rate of as cent indicates that the uptrend has leveled off and provides the technician with a lead indication that the uptrend may be coming to an end. Because of the nature of its construction, the momentum line will always lead the price action. It will lead the advance or decline of prices by

a few days, then will level off while the current price trend is still in effect, before moving in the opposite direction as prices begin to level off

The most widely followed momentum oscillator in technical analysis is Welles Wilder's Relative Strength Index (RSI). The formula for the RSI is as follows:

$$RSI = \frac{100}{1+RS}$$

$$\text{Where } RS = \frac{\textit{Average of 14 Day's Up Closes}}{\textit{Average of 14 Day's Down Closes}}$$

The RSI is plotted on a graph with a vertical scale from zero to one hundred, with highlighted horizontal lines drawn at scaled values of 30 and 70. The horizontal axis corresponds to the time line on the bar chart.

Relative Strength Index (RSI)

Interpretation of the RSI is twofold. First the areas on the chart above seventy and below thirty are critical areas for the technician. When the indicator is in the area above 70, the market is said to be overbought. When the indicator is in the area below 30, the market is said to be oversold. These terms refer to a market condition where prices have moved too far too quickly, such that the technician can expect a correction to take place before the market resumes its trend .

One of the most valuable ways to utilize an oscillator is to watch for a divergence. A divergence describes a situation when the trend of the oscillator moves in a different direction from the prevailing price trend. In an uptrend divergence occurs when prices continue to rise, but the oscillator fails to confirm the price move into new highs. This often provides an early warning of a possible price decline and is called bearish or negative divergence. In a downtrend, if the oscillator fails to confirm a new low in the price trend, a positive or bullish divergence exists, which warns of a potential price advance. An important requirement for divergence analysis is that the divergence should take place near the oscillator extremes of 70 and 30 respectively.

Various chart patterns show up on the RSI indicator as well as support and resistance levels. Trend line analysis can then be employed to detect changes in the trend of RSI. The process of updating the RSI on a daily basis is greatly facilitated by accessing technical analysis software programs on a personal computer to perform the calculations and plot the indicator on the bar chart.

If you are connected to Internet, then Click here for Commodity Market Futures & Options Terms & Definitions

-The End