

**“Actual Production History” (APH) yield**—The basis for determining the producer’s guarantee under either the multi-peril crop insurance program or most federally subsidized revenue insurance policies. The producer’s APH yield is calculated as a 4- to 10-year simple average of the producer’s actual yield on the insured parcel of land. If a producer does not have actual yields, the series (up to 4 years) is filled in with a “transition yield,” based on either county or program yields.

**Actuarial soundness**—An insurance term describing the situation where indemnities paid out, on average, equal total premiums and the insurance program “breaks even.”

**Adverse selection**—A situation in which an insured has more information about his or her risk of loss than does the insurance provider, and is better able to determine the soundness of premium rates.

**Agricultural Resource Management Study (ARMS)**—A probability-based annual survey of farmers and ranchers in the contiguous 48 States conducted by the Economic Research Service and the National Agricultural Statistics Service of USDA. The sample data can be expanded by using appropriate weights to represent all farms. The ARMS was previously known as the Farm Costs and Returns Survey (FCRS).

**Basis**—The difference between a specific futures price and a specific cash price for the same or related commodity.

**Basis contract**—A forward contract that calls for the price to be determined by applying a specified difference (the basis) to a particular futures contract price to be observed at a future time, as selected by one of the trading parties. Both contracting parties are left with price level risk until the final price is established.

**Basis risk**—The risk associated with an unexpected widening or narrowing of the basis between the time a hedging position is established and the time that it is lifted.

**Call option**—An option contract that entitles the holder the right, without obligation, to buy a futures contract at a specified price during a specified time period. The buyer pays a premium to the seller for this right. A call option is purchased to protect against, or with the expectation of, a potential rise in the futures price.

**Cash renting**—A type of land rental agreement between a landlord and tenant. Typically, the tenant rents the land for a fixed amount per acre that is pre-specified in the agreement.

**Certainty equivalent**—The certain return that would provide an individual the same level of satisfaction as a specified uncertain prospective return. The largest certainty equivalent outcome is preferred when comparing alternative risky choices.

<sup>30</sup>For additional definitions on futures and options terms, see Heifner, Glauber, Miranda, Plato, and Wright; Commodity Futures Trading Commission.

**Coefficient of variation (c.v.)**—A measure of variability in a data set. It is calculated as the standard deviation of the data, divided by the mean (or average). The lower the c.v., the smaller the relative variability of that data set.

**Commodity Futures Trading Commission**—The Federal agency established in 1974 that regulates futures and commodity options trading under the Commodity Exchange Act.

**Contract payments**—Direct payments to producers of program crops authorized by the 1996 Farm Act. These payments are in effect for fiscal years 1996-2002, totaling \$35 billion over that time horizon. Contract payments do not vary depending on market prices or production levels. They are also known as Agricultural Market Transition Act (AMTA) payments.

**Cooperative State Research, Education, and Extension Service**—A U.S. Department of Agriculture agency that helps fund and administer research and educational programs done jointly with land grant universities and other institutions.

**Deficiency payments**—A government payment initiated under the 1973 Farm Act and eliminated with the 1996 Farm Act. Deficiency payments were made to farmers who participated in wheat, feed grains, rice, or cotton programs. The payment rate (expressed in per bushel or per pound terms) was based on the difference between the price level established by law (the target price) and the higher of the market price during a period specified by law or the price per unit at which the Government provided loans to farmers to enable them to hold their crops for sale at a later date (the loan rate). The payment equalled the payment rate, multiplied by the acreage planted for

harvest, up to the maximum payment acres, and then multiplied by the program yield established for the particular farm.

**Deferred price contract**—(1) Any forward contract where price is left to be determined later. (2) A forward contract that transfers ownership before price is determined.

**Delayed price contract**—A forward contract that transfers ownership of a commodity from a farmer to a buyer while providing for price to be set and payment to be made at a later date. May also be called a “deferred price contract” or a “price later” contract.

**Delayed payment contract**—A forward contract that establishes price and transfers ownership of a commodity from the farmer to the buyer while providing for payment to be made at a later date. Used by farmers for shifting income between years for tax purposes. May also be called a “deferred payment contract.”

**Efficient market**—A market in which price fully reflects all relevant information.

**Empirical probability distribution**—A table or figure describing the likelihood of events that is based entirely on observed relative frequencies without making any assumptions about the shape of the distribution.

**Exercise (or strike) price**—The price specified in an option contract at which the option holder can buy (call) or sell (put) a futures contract.

**Farm Service Agency**—The U.S. Department of Agriculture agency that administers various farm programs, including contract payments and farm ownership and operating loans.

**Flat (or fixed) price contract**—A forward contract that establishes the specific price to be paid by the buyer to the seller.

**Forward contract**—An agreement between two parties calling for delivery of, and payment for, a specified quality and quantity of a commodity at a specified future date. The price may be agreed upon in advance, or determined by formula at the time of delivery or other point in time.

**Forward pricing**—Agreeing on price for later delivery. “Forward pricing” is used broadly in this report to refer both to hedging in futures or options, or forward contracting.

**Futures contract**—An agreement priced and entered on an exchange to trade at a specified future time a commodity, or other asset, with specified attributes (or in the case of cash settlement, an equivalent amount of money).

**Hedge-to-arrive contract**—An agreement between a farmer and buyer that calls for the farmer to deliver and the buyer to pay for a commodity on a future date at the current futures price plus a differential (basis) to be determined at delivery time. Some hedge-to-arrive contracts allow for rolling over to later maturing futures contracts. From a farmer’s standpoint, a hedge-to-arrive contract is similar to a short hedge in that the futures price is fixed but the basis is left to be determined later.

**Hedging**—Taking a position in a futures or options market which tends to reduce risk of financial loss from an adverse price change.

**Idiosyncratic risk**—Risk that is specific to an operation and that is not common to all producers in the area. A broken water pipe, for example, reflects idiosyncratic risk.

**In-the-money option**—An option contract that would yield a positive return to the holder if exercised. An option is in-the-money if the strike price exceeds the market price for a put, or is less than the market price for a call. The magnitude of this difference is the intrinsic value of the option.

**Indemnity**—The compensation received by an individual for qualifying losses paid under an insurance program. The indemnity compensates for losses up to the level of the insurance guarantee.

**Intrinsic value**—The value of an option if immediately exercised. The amount by which the current price for the underlying commodity or futures contract is above the strike price of a call option, or below the strike price of a put option.

**Leverage**—Use of borrowed funds to finance a business, such as farming, or an investment.

**Liquidity**—The extent to which assets can be quickly converted to cash without accepting a discount in their value. An asset is perfectly liquid if its sale generates cash equal to, or greater than, the reduction in the value of the firm due to the sale. Illiquid assets, in contrast, cannot be quickly sold without a producer accepting a discount, reducing the value accruing to the firm by more than the expected sale price.

**Long hedging**—Purchasing a futures contract or a call option to offset the risk of a price increase in the cash market.

**Margin**—The money or collateral guaranteeing the customer’s futures or options trades, deposited by a customer with his or her broker for the purpose of insuring the broker against a loss on an open futures contract. The initial margin is the amount required to

enter a futures position. The maintenance margin is the amount required to continue a futures position without receiving a margin call.

**Margin call**—A request from a broker to a customer for additional margin to cover the customer's futures position after a price change unfavorable to the customer. The broker may close out the customer's position if the margin call is not met.

**Marketing contract**—A verbal or written agreement between a processor or handler and a grower establishing an outlet and a price, or a formula for determining the price, for a commodity before harvest or before the commodity is ready to be marketed.

**Minimum price contract**—A contract providing the farmer with protection against a decline in price below a minimum level, while leaving the final pricing until a later date.

**Moral hazard**—The ability of an insured to increase his or her expected indemnity by actions taken after buying the insurance.

**Natural hedge**—A tendency for yield and price deviations from expectations to offset each other in their effects on crop revenue. This tendency is strongest in major growing areas.

**Normal distribution**—A symmetric, bell-shaped mathematical distribution that is widely used in statistical analysis because it closely approximates many observed distributions. Normal distributions are fully described by their means and variances.

**Off-exchange option**—An agreement between two parties entered without the services of an organized exchange that gives one party the right to buy or sell an asset at

a specified price over a specified time interval.

**Optimal hedge**—The size of the futures or options position that minimizes a hedger's risk. Often expressed as a ratio of the futures or options position to the cash position. Yield risk and/or basis risk generally cause the optimal hedge ratio to be less than 1.0.

**Option contract**—A contract that gives the holder the right, without obligation, to buy or sell a futures contract at a specific price within a specified period of time, regardless of the market price of the futures.

**Out-of-the-money option**—An option contract that cannot be profitably exercised at the current market price. An option is out-of-the-money if the market price exceeds the strike price for a put or is less than the strike price for a call.

**Premium**—An amount of money paid to secure risk protection. Option buyers pay a premium to option sellers for an options contract. Similarly, the purchaser of an insurance policy pays a premium in order to obtain coverage.

**Price-yield correlation**—A statistical measure of the closeness of the relationship between prices and yields.

**Production contract**—A verbal or written agreement between a processor (integrator) and a grower that usually specifies in detail the production inputs supplied by the processor, the quality and quantity of a particular commodity that is to be delivered, and the compensation that is to be paid to the grower. In return for relinquishing complete control over decisionmaking, the producer is often compensated with a price premium or lower market risk.

**Put option**—An option contract that gives the holder the right, without obligation, to sell a futures contract at a specific price (the “strike price”) within a specified period of time, regardless of the market price of the futures. A put option normally is purchased to protect against a cash price decline (hedger) or with the expectation of a futures price decline (speculator).

**Reinsurance**—A method of spreading insurance companies’ risk over time and space. For approved agricultural insurance programs (Federal crop insurance and approved revenue insurance products), the Risk Management Agency shares the risk of loss with each private insurance company delivering policies to producers. Private reinsurance is also available, where one insurance company transfers part of the risk to another company by agreements, which vary as to the terms applicable to the risk transferred.

**Revenue insurance**—An insurance program offered to farmers that pays indemnities based on revenue shortfalls. As of 1998, three revenue insurance programs were offered to producers in selected locations. These three programs (Crop Revenue Coverage, Income Protection, and Revenue Assurance) are subsidized and reinsured by the Risk Management Agency.

**Risk**—Uncertainty in outcomes that are not equally desirable to the decisionmaker, and that may involve, among other outcomes, the probability of making (or losing) money, harm to human health, repercussions that affect resources (such as credit), or other types of events that affect a person’s welfare. Risk is uncertainty that “matters.”

**Risk aversion coefficient**—A measurement of an individual’s preference for a certain outcome

over an uncertain outcome with equal expected value.

**Risk Management Agency**—The U.S. Department of Agriculture agency that provides oversight, subsidization, and reinsurance for approved risk management programs, such as the Federal multi-peril crop insurance program and various revenue insurance programs.

**Share renting**—Renting land under a contract that calls for the crop to be divided between the tenant and the landlord in fixed percentages. May also provide for sharing certain inputs.

**Short hedging**—Selling a futures contract to offset the risk of a price decline in the cash market.

**Standard deviation**—One of the most widely used measures of dispersion, calculated as the square root of the variance.

**Time value**—The portion of an option’s premium that exceeds the intrinsic value. It reflects the probability that the option will move in-the-money, or deeper in-the-money. The longer the time remaining until expiration of the option, the greater its time value.

**Unbiasedness**—Characterizes an estimate, forecast, or forward (including futures) price that is neither systematically high or low, but correct on average.

**Uncertainty**—Lack of sure knowledge or predictability because of randomness.

**Utility function**—A mathematical expression that can be used to represent a decisionmaker’s risk preferences.

**Variance**—One of the most widely used measures of dispersion, calculated as the average squared deviation from the mean or expectation.