The Core 4 Approach...What Is It?

In short, Core 4 is a common-sense approach to improving farm profitability while addressing environmental concerns. The approach is easily adaptable to virtually any farming situation and can be fine tuned to meet your unique needs. Additional conservation practices may also be needed to achieve specific natural resource goals.

Why Consider the Core 4 Approach?

In most situations, the Core 4 approach—integrating Conservation Tillage; Crop Nutrient Management; Weed and Pest Management and Conservation Buffers—will help maintain or improve your bottom line. It can address 80 percent or more of the environmental issues facing today's farmers. It's easily adaptable to virtually any farming situation…including yours.

Research and practical application show this approach delivers the following benefits and more.

The Basics of Core 4 Are:

1] Better Soil — Sustainable soils are critical to long-term productivity. When properly planned and applied, the Core 4 approach can improve long-term soil productivity. It helps increase organic matter, improve moisture retention, enhance water infiltration, reduce soil compaction and reduce erosion.

2] Cleaner Water — Along with food, fiber, energy and other renewable resources, agriculture also can protect and improve water quality. With the Core 4 approach, you will do your part to keep America's water clean.

3] Greater Profits — By sharpening management skills and utilizing the latest appropriate technologies, you can achieve higher levels of economic efficiency and cropland productivity with the Core 4 approach.

4] Brighter Future — Consumer expectations of agriculture are growing. In addition to a source of economical, abundant food, fiber and energy, consumers expect agriculture to protect air, soil, water, wildlife and other natural resources. While growers have always respected and clearly understood the importance of protecting the natural resources, now is the time to build on past successes. And to tell consumers about this unprecedented agriculture-wide effort.

Four Key Practices of Core 4:

1] Conservation Tillage — is defined as having at least 30 percent ground cover after planting and is also known as crop residue management. These practices improve soil quality, water quality, air quality and on-farm productivity while reducing expenses. No-till, one type of conservation tillage, can reduce erosion by 90 percent and conserve 2-4" of soil moisture for dryer periods. In addition, surface residue causes organisms to remain active for longer periods contributing to soil humus formation.

Widely adopted throughout most of the United States, today's technologically advanced equipment and crop protection products make conservation tillage a practical option for most climates and soil types. Growers save time, fuel and equip-

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Better Soil. Cleaner Water. Greater Profits. Brighter Future.

ment cost while maintaining and/or increasing yields and profits. Over several years, fewer tillage trips improve soil quality through increased organic matter, earthworm and other biological activity.

Conservation tillage also improves water quality by reducing the movement of soil and associated potential pollutants — like phosphorus and crop protection products — to surface water. Excess phosphorus in fresh water often results in abundant algal growth. It also increases microbial activity which is thought to speed the breakdown of crop protection products.

2] Crop Nutrient Management — is defined as increasing nutrient efficiency to maximize economic return while maintaining or improving the environment. To increase nutrient efficiency, growers apply plant nutrients at the right time and place to achieve their estimated yield. This approach helps reduce potential pollution of surface and ground water. All sources of plant nutrients — manure, fertilizers, previous crops, irrigation tailwater, etc. — are included in the budget. Specific management practices include soil testing, split applications, side dressing, nitrogen stabilizers, manure testing, application calibration, variable rate technologies and livestock/poultry feed rations. The basic components of a crop nutrient budget and the resulting management plan are:

• Field map
• Soil test
• Crop sequence
• Estimated yield
• Sources and forms
• Sensitive areas
• Recommended timing
• Recommended rates
• Recommended methods
• Annual review and update

3] Weed and Pest Management (IPM) — is a comprehensive approach to controlling these and other yield-robbing pests. It often involves the use of various management practices that either prevent or reduce economically harmful weed, insect, disease and other pest populations. In other situations, management practices are used to reduce 'populations' to an economically tolerable level. In all situations, it helps maintain or improve a quality environment.

Specific practices include scouting fields, rotating crops, planting resistant crops, encouraging beneficial insects and, when necessary, utilizing crop protection products. When crop protection products are used, application rates and methods are based on threshold populations, safety to non-target organisms, soil types, sensitivity and a variety of other site-specific factors.

4] Conservation Buffers — are strategically planted grasses, trees and other ground cover. When planned and implemented to match the site, they reduce the impact of runoff from adjacent fields.

Buffers can reduce up to 80% of sediment and phosphorus (40% on average) reaching surface water by trapping it in the vegetation. Significant amounts of nitrate can be removed from the system by the root structure and stored in the plant material. Buffers also can reduce wind borne pollutants.

Several years of cost analysis show areas suitable for buffers are often the least profitable areas in the field. In fact, the continuous buffer sign-up for the Conservation Reserve Program (CRP) can turn unprofitable acres into a profitable situation. Buffers can also:

- Trap any escapes of crop protection products on the surface and in the root zone to allow natural decomposition processes to occur
- Allow plants in the buffer zone to use potential pollutants as nutrients
- Reduce wind and water erosion
- Increase infiltration and reduce runoff
- Increase fish and wildlife habitat
- Trap snow to increase moisture available to crops
- Add aesthetics to the landscape both visually and in terms of plant and animal populations