HOW TO CURE THE CAUSE OF SOIL COMPACTION

Soil supports plant life. To support healthy plants, it must be of good "tilth", containing the correct mixture of sand, silt, and clay particles, plus the correct arrangement of these particles for good structure. Soils of good type and structure must be maintained in top condition by proper feeding, and an adequate supply of water and air are needed.

Grass plants must be supported by deep, well-developed root systems to remain healthy and resist wear, and these develop only in soils of good structure. But soils deteriorate and become poor and compacted through use and misuse. When compaction occurs, air and water movement is restricted, fertilizers cannot penetrate into the soil, and roots struggle for survival at the soil's surface. The top-growth gradually weakens; the plant becomes subject to disease. It is unable to survive periods of drought or excessive heat. It cannot stand the constant pounding of human feet and the wear and tear of maintenance machinery. Maintaining any kind of grass cover under these conditions becomes difficult and expensive.

What is soil compaction? Soil of good structure is comprised of a variety of particle sizes, with many spaces between these particles. These are called "pore spaces." The existence of these pore spaces is a key factor; roots do not grow in the soil, they grow in these "pore spaces" between the soil particles. Water, air and food travel through the soil by way of these spaces. When soil particles are pressed together into plate-like particles, the number and size of the pore spaces is reduced and the "passageways" are sealed to the movement of vital materials. Then the soil is "compacted."

Compaction indicates its presence in many ways — shallow root systems, the presence of knotweed and clover, the development of algae and black scum, puddles, dry spots, and just plain hard soil. If any, or all, of these visual symptoms are present, a profile sample of the soil should be taken.

In the soil sample look for these indications of poor soil structure — the presence of one type of soil, such as clay; or pockets of improperly mixed materials, or parallel layers of different materials.

Any of these indications of poor structure are directly related to the presence of compaction. If any of them exist, root penetration, in addition to the movement of water, is stunted. When this happens, soil particles are easily pressed together, pore space and size is reduced, and the soil compacts.

Compaction may result from ordinary use of the area by golfers, or maintenance men. Other contributing causes of compaction may not be so readily discernible. Poor drainage is high on the list. When soil is saturated for long periods of time, air movement is retarded because it cannot pass through water. Without water, plants die, despite a plentiful supply of water. Also, water is the lubricant that assists the compacting forces.

Poor drainage will also show up in the soil sample. Look for a blue or mottled color. The blue color is caused by the chemical change in the iron content of the soil. Without oxygen, the ferrous form of the iron is changed to the ferric form, and blue color results.

If excess water is present, look for these probable causes:

-poor sub-surface drainage
-seepage
-poor surface drainage

Sub-surface drainage is an important element that should be considered when construction is planned. To rectify errors after building the course is an expensive proposition.

EVALUATING YOUR OPERATION

With the passing of summer, golf course superintendents in many parts of the country have an opportunity to sit back, take a deep breath and evaluate their operations. On many courses, heavy player traffic has slowed, seasonal employees have gone and budget time is approaching. It's time to take inventory.

Besides the problems of getting the course and equipment ready for winter and inventorying leftover supplies, it's also time to look back over the summer and take a mental inventory of your operation's strengths and weaknesses.

For example, what went wrong during the season? Was your course damaged by insects or disease? If so, what can be done to prevent a recurrence? Now is the time to figure out what should be done and when.

Were your crew members aerifying the course on the day of a club tournament? The slow seasons are the time to work out lines of communication to prevent such misunderstandings from happening next year.

What can be done to improve the course? Take an objective look at your irrigation system, your equipment and the design and condition of your course. Maybe this is the time to plan improvements.

While you are evaluating your performance over the last season, don't overlook the things that went especially well, either. Did you pick up any additional responsibilities this year, responsibilities you might like to continue? Did you try a new scheduling program that was effective? How can it be changed to work even better?

Which of your employees really came through for you? Did an assistant take over some of your responsibilities and run with them? Which employees are willing to put out a little extra effort? Which ones seem to have good ideas? Did one of your seasonal employees prove to be especially hardworking and reliable? If so, you will want to make arrangements to have him back next year.

Now take a look at those projects that were put off all summer. Now is the time to dust them off and get to work on them.

Here is where a good filing system comes in handy. By taking clear notes on problems and opportunities as they occur, and by adding to those notes when you evaluate your operation at the end of the season, you can develop a handy reference tool for use in the future.

Whatever your evaluation of the summer proves, it's important to reap whatever benefits you can. If everything went relatively well, it's just as vital to know why as it is to uncover the causes if there were any problems. By building on the past year's achievements, and avoiding its mistakes, we can face anything the future has to offer.

G.C.S.A.A.
Credit - Forefront

Every year a farmer complained about the weather and the crops. It was too wet or too dry, or there was too much grass, or there were too many weevils, or there was no market, or something. Never anything good. Then a year came when good crops were harvested. Prices went soaring, and bank accounts were bulging.

" Pretty good year, you'll have to admit," a neighbor said.

"Middling", the farmer allowed, "but terribly hard on the soil".

The man rushed into a barbershop and snapped:
"Cut all three, short."
"What three?"
"The head, the beard, and the conversation."