improve skinned areas that harden quickly and stay wet for long periods by incorporating a soil conditioner into the top two inches of clay. When rain is threatening, some groundskeepers prefer not to open up the clay by dragging until about an hour prior to practice.

Put the final finish on the skinned surface before each game. For the final finish, hand rake with a specially constructed drag or field finisher. Apply the finish in a spiralling motion, starting at first base working toward third base, in a clockwise or counter clockwise motion. Reverse the patterns each time to prevent uneven spots.

Using Riding Bunker Rakes

When personnel hours are at a premium, riding sand rakes, such as the John Deere 1200 Bunker and Field Rake, can speed the process. Riding sand rakes enable the user to groom and put a finish on ball fields in considerably less time than raking by hand. The operator can even attach a small gang drive reel mower and mow the field.

Using the field rake, scarify the skinned area 1/2-inch deep with the narrow scarifier attachment. The conditioner rake should be in the down position to loosen the soil surface and accelerate drying. You can fill in any low spots by using the 60-inch-wide aluminum blade.

Avoid the grassy areas of the field when dragging, scarifying and finishing to avoid creating a lip at the grass edge. You can pull an aerator behind the rake to aerate and relieve the lip. If the field does not dry sufficiently, use the conditioner rake for the final step. When the field is dry, use the rear-mounted field finisher for this final step. Apply the final finish in a spiralling fashion just as you would using self-built drags.

Checking the Grade

Grade conditions may have gradually altered over the years, affecting drainage. Use a scraper blade for changing the grade of an area or when you renovate a field. You can accomplish additional field care projects quickly and easily by using a field rake.

During the playing season, check field dimensions every two to three weeks, depending on growing conditions. Stretch a string along the baselines and diamond to provide a straight edge. You can use a power edger or sod cutter to recut sharp lines.

Early in the season when there is more grass to remove, you can use a hoe to dig out grassy clumps and fill in low areas with clay. Keeping the clay and grass flush with each other will allow the ball to roll true. In the off-season, you can use glyphosate after the edging procedure to spot treat grass clumps

The Pitcher's Mound

The pitcher's mound is usually constructed of a firmer clay than the rest of the field. Keeping the mound completely flat allows the pitcher to step from the rubber and remain on level ground. You can maintain the mound edges at an approximate 45-degree angle down to the infield.

You can bury mats underneath the clay of both the pitcher's mound and home plate to prevent players from causing extensive damage to the field by digging deep holes. With the flat side of an aluminum rake, you can fill in the batter's box and the catcher's hole.

After each period of play, sweep loose dirt from the holes in the mound and batter's boxes, lightly wet the depressions, add fresh material and tamp down. If problem areas require more than one layer of material, wet and tamp each layer as you apply it. Maintain bullpens in the same manner. Where possible, wet down and cover the mounds until the next practice or game.

Ideally, ball fields will be equipped with irrigation systems. With or without automated irrigation, adjust watering to weather conditions and field use. Keeping turf moist enough for proper growth while keeping the baselines dry is a continuing problem. Highly used areas, such as around home plate, need additional water to combat stress.

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SEEDING RATES

In the July 1992 issue of the *Newsletter* a brief article touched on the number of seeds in a pound of different turf species. In the April, 1991, issue of The Lawn Institute publication *HARVESTS* it is stated that 12 seeds per square inch are required if the desired density of 6 grass plants per square inch are to be achieved in the established turf. Many reasons are given for a 50% establishment rate which include depth of seed coverage, washing by rain, interplant competition, damping-off diseases and 80 to 85% germination of the seed.

The following table converts the number of seeds in a kilogram to the seeding rate required for four common turf species used on sports fields when sown in pure stands. When used as mixtures some adjustment should be made for the relative competitiveness of the species.

The Number of Seeds/Kilogram and the Seeding Rate Required to Produce Six Viable Plants/100 Square Meters in Established Turf.

Turfgrass Species	Seeds/Kilogram	Kilograms Seed /100 m^2
Kentucky Bluegrass	2,865,961	0.659
Fine Fescue	1,102,292	1.687
Perennial Ryegrass	661,375	2.812
Tall Fescue	507,055	3.668