USGA adds funding
Researchers rejoiced when informed that the USGA had doled out $4.5 million.

Rotary report
Superintendents and manufacturers discuss what's new with rotary mowers.

Ross now & forever
An architect, superintendent and playing professional keep the master's work alive.

Maintenance breakdown per hole
Based on a 1991 survey of private country clubs in the United States, the average maintenance cost per hole is $30,870. Source: Pannell Kerr Forster.

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By Mark Leslie
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— Ken Starrett

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Continued on page 37

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By Hal Phillips
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By Peter Blais
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Erosion control blankets

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Ti every day," he said.

New environmental laws have helped produce "remarkable growth" among erosion control materials manufacturers the last few years, said Tim Lancaster, manager of technical services for North American Green in Evansville, Ind. "Over the past five years the environmental field in general has just ballooned and we've ridden that balloon up," Lancaster said. New national Clean Water Act regulations will regulate erosion and sediment control at construction sites of more than five acres, he said.

Boyd said, generally, if a slope is greater than 25 percent, a blanket is used. "Depending on the soil, it could be anything over 10 percent." Like soil, when blankets or mats are laid down, they immediately stabilize the area, Boyd said. "Mats add stability instantaneously in terms of construction — about three weeks. Soil adds stability but is generally more expensive. Sometimes soil will slide and so you have to stake it."

Lawn Institute Executive Director Dr. Elliot Roberts said, given the choice, he would use soil instead of erosion control blankets because establishing a root structure is the most crucial factor.

But soil costs three to four times more than blankets, he estimated.

In Hawaii, where environmentalists from as far away as Japan are attacking golf course projects, erosion control blankets are a godsend. One such project is Koolau Golf and Country Club on the island of Oahu, where blankets helped save the site from erosion when 134 inches of rain fell from November through May — 20 inches during a single two-week period, and eight inches in one day. Developer Minami Group Inc. and architect Dick Nugent of Chicago worked with course superintendent Sean Hoolehan to solve the problem, which was compounded by the silty clay volcanic soils that easily erode.

"Irrigation alone is enough to create erosion," Hoolehan said.

Lancaster said that during construction the irrigation was turned on to discover where the runoff would go. Then, after the fairways were sprayed with Bermudagrass and hydromulched, the crew laid the blanket along those paths.

About 10 percent of the Koolau course area required erosion control blankets. The rest was hydromulched to contour and hold moisture.

Nugent said erosion control blankets are "absolutely" more important in this environment-conscious society with its growing number of new laws. "One of the major concerns in runoff," he said. "In Hawaii they (government agencies) were very concerned because we were upstream from a drinking water reservoir. We built a lot of water-retention basins. We dug pockets at the bottoms of our ravines and swales..."

"For this project we've been more expensive not to do it. The project would have been stopped by the government, saying we were contaminating a drinking water reservoir. How much is that worth?"

Nugent added that using blankets is "good soil conservation. Where topsoil is being stripped and replaced, it is always at a premium. You can get grass to grow on poor soil with lots of fertilizer. But then you're into a very intensive maintenance program getting grass to continue to grow in a hostile environment."

North American Green reported that after erosion control measures were applied at Koolau, nature proved the theory of establishing grass quickly. On the first fairway, where hydromulch provided the only protection, a two-by-200-foot gully was formed by rainfall and irrigation runoff, requiring expensive rework and reshaping.

On the second fairway, where blankets were used, no significant erosion occurred.

Starrett said: "Most erosion-control practices are geared around vegetation. Vegetation ultimately is what is helping to hold the soil together, so a lot of these products are temporary to make sure the soil is being held in place during germination period to establish a strong root system. "Temporary blankets are more common on golf courses. They are used to expedite germination, plus we have special netting to put over the blanket so you can mow right over it." Starrett equated the blankets to a miniature greenhouse.

"Blankets protect from highway, breakas heavy rain drops, and keeps soil temperatures steady," he said. "People see the quick growth and ask what kind of fertilizer we use. We don't use any."

Erosion control blankets can be degradable, biodegradable or non-degradable. Their cost runs from 50 cents to $4 per square yard.

Golf course builders mainly use single-net, quick-degrading straw blankets. Blankets can be bought already impregnated with seed ranging from wildflower to bentgrass.

The mats are made with a variety of materials from straw (which degrades in eight months) to coconut (which degrades in three years) to polypropylene and other materials that are non-degradable.

Starrett added that erosion control blankets are in the construction specifications of the U.S. Army Corps of Engineers, Federal Highway Department, Soil Conservation Service and about every state.

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