curve on the issue, at least catching up to it. USDA spending on its competitive grants program has grown from $39.7 million in fiscal year 1989 to $97.5 million this year and $150 million has been proposed for 1993. "Agricultural interests have finally turned the corner. There is the realization that if agriculture is to be competitive, [USDA] must support competitive research," says Mary Clutter, assistant director for biology at the National Science Foundation (NSF) and a long-time supporter of research in plant biology. "My sense is that USDA is seriously and firmly committed to establishing a major and comprehensive grant program," agrees Theodore Hullar, chairman of the NRC's Board on Agriculture and chancellor of the University of California, Davis, which has one of the nation's preeminent agriculture schools.

But the scientists won't want to let up on USDA: Currently only about 60% of USDA's competitive grant money goes into plant research and the department is putting tens of millions of dollars annually into the snakeweed, blueberry, and other projects that have not gone through competitive peer review.

Says committee chair Goodman of USDA's grants program: "The optimist in me agrees that there has been progress. The realist, however, sees how metastable this innovation at Agriculture really is." Which is why, when the NRC committee first met

GOODMAN: UNIVERSITY OF WISCONSIN, MADISON HULLAR: UNIVERSITY OF CALIFORNIA, DAVIS

Critics. Robert Goodman *(left)* and Theodore Hullar want USDA to be more like NIH.

21 months ago, its members were so disillusioned with the lack of progress at USDA over so many years, that an early draft of the report suggested that any special initiative for plant biology be given to another federal agency. "There was the feeling," said one committee member, "that USDA had had ample opportunity to build basic plant biology but had blown it."

Eventually, however, political reality prevailed, especially in view of the fact that no other agency is likely to come up with anything near the $1 billion that USDA has in its research budget. For example, the NSF, the next most abundant source of funds, expects to spend $80 million on plant research in 1992, Clutter says. Hence the recommendation in the final report, entitled "Plant Biology Research and Training for the 21st Century," for a National Institute of Plant Biology in USDA that follows the model of the competitive review systems at the National Institutes of Health and the NSF. The Goodman report also asks for all the accoutrements of a sensibly managed research program, including funding for training programs and support for facilities and meetings. "The [USDA] system needs more than finetuning," says Goodman. "It needs complete rethinking."

But now that USDA's competitive grants program is growing, will the complete rethinking that Goodman recommends take place? Hullar, for one, is optimistic, although he cautions that overall budget stringencies and concerns that expansion of agriculture's competitive grants program might damage local and regional projects, which still have strong political support, might slow or derail a major shift in policy. Still, one of the major protectors of those political interests, Representative Jamie Whitten (D–MS), has recently stepped down at least temporarily from his powerful post as chairman of the House Appropriations Committee, and that may ease the way to the changes the NRC panel is recommending. And if USDA should prove unwilling to fulfill the role the panel has proposed for it, the report has another suggestion: "The NSF should be assigned the task of leading the program."

–Anne Simon Moffat

SPACE COOPERATION

U.S. and Russia Proceed Cautiously

The signing of a major arms-control agreement overshadowed virtually everything else at last week's Washington summit between U.S. President George Bush and Russian Federation President Boris Yeltsin. But the summit also produced two important civilian space agreements that demonstrate the two nations' intent to pursue broad cooperative activities while they cautiously explore the idea of transferring former Soviet technology to the U.S. space program (*Science*, 12 June, p. 1510).

The new cooperative agreement, an expansion of a 1987 U.S.-Soviet pact, sets out a framework for joint projects in space science and exploration. According to the National Aeronautics and Space Administration (NASA) associate deputy administrator Sam Keller, these may include three manned missions: a flight of Russian cosmonauts aboard the U.S. space shuttle in November 1993; a visit by U.S. astronauts to the Russian Mir space station in 1993; and a U.S. shuttle mission to Mir in 1994 or 1995. In addition, unmanned projects such as space-based global monitoring are also under consideration. This agreement, however, does not cover projects that might involve an exchange of funds—such as an innovative plan under which NASA would buy a spare lander from the Russian Mars 94 mission that the Russians would then launch—Keller says.

Both governments also now plan to send aerospace business delegations to meet with their counterparts in order to assess technologies and compare business practices. And the United States has agreed to "consider favorably" a request by Inmarsat, the International Maritime Satellite Organization, to launch a geosynchronous communications satellite aboard a Russian Proton booster later this summer. Final approval, however, awaits State Department issuance of an export license. The White House says the license will not be granted until the two nations negotiate a bilateral agreement to guard against unwarranted transfer of Inmarsat-3 technology to Russia.

UNIPHOTO

Watch this space. Bush and Yeltsin in accord.

Just a day after Bush and Yeltsin announced the space cooperation pact, NASA signed a $1 million, 1-year contract with the semiprivate Russian aerospace firm NPO Energiya for a study of certain Russian technology that might be useful to the U.S. space station. Topping the list are studies of the Soyuz TM spacecraft, which NASA is considering as an interim rescue vehicle for the space station, and the Progress transport spacecraft. Similarly, NPO Energiya will look into the possibility of adapting to NASA specifications the automated docking and rendezvous system now in use aboard Mir, and any obstacles to the use of Mir for NASA's long lead-time life science experiments.

–David P. Hamilton