tax payments, conference travel or summer transition periods.

INCOME BOOST

Sometimes the only way to get breathing room is to find ways to earn more. That could come from leveraging your skills, applying them elsewhere or bargaining for more money.

When Rios arrived at Northwestern with an US National Science Foundation (NSF) fellowship, which would fund him for 3 years within a 5-year period, he put off using it for the first year and took the department stipend of $26,400. But because his fellowship relieved his department of paying that stipend for 3 years, he negotiated an additional $2,000 per year from the department. He used the money to offset relocation expenses.

Howe picks up extra cash in several ways. Between August and October, she works as a medical histology lab instructor at Albert Einstein for $8,400 and takes other small jobs. She's been an online writing tutor for non-US medical students, produced medical illustrations and earned up to $1,000 playing her violin at university gigs and weddings.

The downside of part-time work outside the lab, she acknowledges, is that it may come at a cost to research productivity. "Not only do you lose the allocated time," she says, "but you don't do your best work when you're consistently overextended." Rios' NSF fellowship prohibits him from picking up jobs unrelated to his studies. Still, he found opportunities to earn money (and to build his network) by earning up to $250 per event to attend conferences, such as those of the Society of Hispanic Professional Engineers or the Society for Advancement of Chicanos/Hispanics and Native Americans in Science. At these meetings, for the stipend, he recruited undergraduates for master's and doctoral programmes in science and engineering at Northwestern.

For some trainees, a sideline to studies can help to pay their way in a pinch. Conservation researcher Jonathan Kolby has almost finished his doctoral programme at James Cook University in Townsville, Australia. But he's struggling, thanks to three grant rejections and dwindling savings. Now, he's selling photographs of wildlife such as frogs and reptiles that he took during his travels to field sites in Africa and North and South America. He hopes that earnings will help to pay the bills.

"Each person will find a different balance that works for them," says Howe. "Something is going to take time away from your science: a relationship, another interest. That doesn't mean you shouldn't do it. Your degree might not be the only thing that you need to do, in order to get yourself to the place you want to be with your science and with yourself as a person." ■

Elizabeth Devitt *is a freelance writer based in Santa Cruz, California.*

TURNING POINT
Plant pioneer

Mary-Dell Chilton was the first person to show that bacteria could genetically modify plants. Shortly after her landmark work in 1977, the plant biotechnologist moved from academia to what is now Syngenta in Research Triangle Park, North Carolina, where she continues her research. In April, she was named a US National Academy of Inventors Fellow.

SYNGENTA

When did you decide to work with bacteria?
As an organic-chemistry graduate student learning about microbiology, I became entranced by the seeming intelligence of DNA — how pure DNA could correct a mutation in a bacterium, but only if the DNA came from the same bacterium. I pursued a PhD on the topic after I met Benjamin Hall, a chemist working on DNA. I wanted to explore how DNA could change the genetics of bacteria. I followed Hall to the University of Washington in Seattle, where I showed that naked, single-stranded DNA — not only double-stranded DNA, as was thought — could correct mutations.

What was the response to your paper showing that bacteria can transfer DNA to plants?
It was hard to publish our work because our conclusion — that *Agrobacterium* is a natural genetic engineer — was so wildly unexpected. We went to *Cell* because there wasn't a proper journal for this subject. Two referees couldn't see anything wrong with our conclusions, but they weren't comfortable publishing it, so they sent us back for more data. In the end, it took about six months to get the paper out (M.-D. Chilton *et al. Cell* **11,** 263–271; 1977). Once it was out, there was wide interest.

What prompted your move to St Louis, Missouri — now an agricultural-technical hub?
I did not have a faculty appointment at the University of Washington. I'm not sure why. I'm pretty sure I was qualified. After 16 years — from PhD student to independent scientist — it was time to go, and I got a position at Washington University in St. Louis. It was hard on my husband's career — he had a good tenure-track appointment in the chemistry department in Seattle. But he became a visiting professor, got a nice research lab and did some good work. My advice, if you can possibly do it, is to find a husband made of solid gold.

Was it difficult being a woman in science?
I never thought about being a woman in science. I thought of myself as a scientist. Maybe that's the way to do it: be what you are and don't think about it.

What was your first achievement as a faculty member?
I worked with others to make the first genetically modified plant. We put a yeast gene that makes alcohol dehydrogenase into a tobacco plant, and showed that it could be passed on, intact, to the plant's children and grandchildren. It was clear that all the technical pieces had come together to make genetically modified plants, but we were naive. It wasn't easy.

You then moved to industry. What was the biggest challenge?
I knew how to modify a tobacco plant, but not a field crop such as maize (corn) or wheat, which are not susceptible to *Agrobacterium*. We had no idea that it would take about a decade to find a way to transfer genes in maize.

Did you anticipate the backlash to gene-modification technology?
Goodness, no. I was very surprised. This was a natural process that we learned from *Agrobacterium*. I thought that the public wouldn't bat an eye. This technology is a tool; there is nothing intrinsically dangerous about it. Tools can be used for good or not so good. My hope is that the technology will be accepted. We need it to feed a hungry world.

What are you excited about now?
I'm working on gene targeting: the ability to put the transgene where you want it in the plant genome. Knowing exactly where it will be placed will help genetically modified crops to obtain regulatory approval. ■

INTERVIEW BY VIRGINIA GEWIN

This interview has been edited for length and clarity.