Somer groen en bruintoer middel Januarie

November 2016 Issue/Uitgawe 50

Newsletter

BLWK/CAWC: Your monthly guide

Content

Upcoming farmers' days and events:

» Somer dekgewas toer – January 19th
» CAWC Lecture day – 1 August 2017
» CAWC Practical day – 3 August 2017

Hi Everybody

Harvest 2016 is done and dusted in the Western Cape; well there might some harvesting left to do here and there. In the most cases feedback was excellent. There was however certain parts in the Swartland that received low rainfall which affected the yields.

This will be the last issue of the newsletter for 2016 and the next issue will be in February. The aim is to publish all newsletters and videos on the website from 2017 onwards. The 2016 conference videos will also be uploaded by then.
We thank you for the feedback we have received during the year about the newsletter. If you have some ideas for us to include in the newsletter, please contact Johann Strauss, johannst@elsenburg.com.

Regards
The editor

Western Cape Government
Agriculture
BETTER TOGETHER.

LANDCARE SOUTH AFRICA

Weaning lambs early could offer big benefits, trial shows

Published 6 November 2016)
By Sarah Alderton
British Farmers Weekly

Early weaned lambs can grow as fast – if not – faster than their unweaned equivalents when fed legume-based forages.

Research by New Zealand's Massey University has found with the right legume-based forages, early weaned lambs can match and exceed the growth of their unweaned equivalents on traditional ryegrass and clover pastures.

Speaking at Beef + Lamb New Zealand's "Farming for Profit" field days in Canterbury, Paul Kenyon said when growing conditions are tight, ewes compete with their lambs, compromising performance of both.

Key management factors

- Have a high-quality, legume-based forage for weaned lambs.
- Minimum weaning weight of 16kg.
- Maintain pasture covers between 1,200kg DM/ha and 2,000kg DM/ha. If grazing legume-based crops, don't graze below 7cm.
- Early weaning can be a flexible management tool.

He says by weaning them on to correctly managed, high-quality, legume-based forages, the lambs are given more opportunity to realise their genetic growth potential.

However, weaned lambs should be allowed unrestricted access to high quality herbage of at least 1,400kgDM/ha.

Benefits

The benefits of weaning early means ewes can either be sold early – which frees up feed for other stock – or benefit from having more time to recover body condition before mating.

Early weaning can also be a useful management tool.

For example, weaning a proportion of the flock early means some ewes can be used as a grazing-management tool to prepare pastures for when the balance is weaned later.

Early weaning can be particularly useful for hoggets, as they typically lamb later than the mixed-age ewes – but are mated as two-tooths at the same time.

This means that, despite their age, they are required to

regain body condition more quickly than the older ewes.

How to wean lambs

Lambs being weaned on to a crop should be given time to adjust to the change in feed. Ideally, running the ewes and lambs on to the crop for a few days before weaning, then running the lambs back on to the crop after weaning, will minimise the weaning check.

When feeding a crop such as lucerne, ensure it is not grazed below 7cm.

In the Massey University trials, researchers were weaning to a minimum weight of 16kgLW, which is what Professor Kenyon recommends.

He says heavier lambs cope best with early weaning, but the quality of the forage on offer is biggest determinant of how lambs will grow post-weaning.

Research ongoing

Trials at Massey will now look at the impact of weaning lambs at 14kg – compared with 16kg – and whether early weaning is as beneficial, given abundant feed resources.

Maximising lamb growth rates in the late spring, early summer period has on-going benefits.

They are finished faster and therefore consume less feed post-weaning.

It is easier to breed from heavier ewe lambs as hoggets and there is flexibility to hold them back later if feed resources are limited.

Heavy lambs require fewer animal health remedies and less labour inputs.

Links of the month

Click on the button to visit the website.

Please note you will need an internet connection

VIEW PAGE
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Mallee growers break through cereals' ceiling

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Tighty Whities Demonstrate Soil Microbiology

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Switch to biological farming expected to bring significant savings and keep growers on the land

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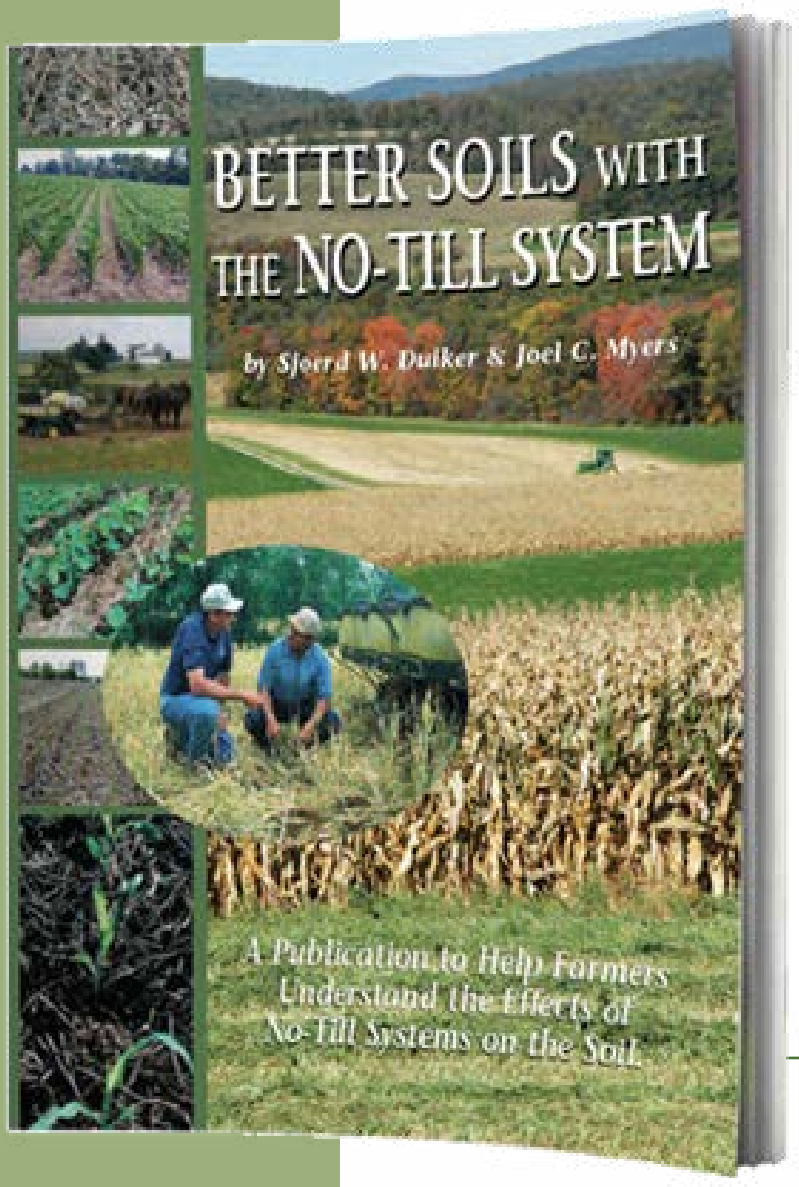
SOIL CARBON COWBOYS



Better Soils with the No-Till System

A publication to help farmers understand the effects of no-till systems on the soil.

June 9, 2016 | Posted in Cover crops

Productive agriculture depends on healthy soil. Soil guarantees that nutrients are made available in sufficient amounts during a plant's life cycle and it holds water that is then available to plants. It also provides many critical ecosystem functions that are necessary for life.

In this free publication from Penn State University, you'll learn how you can protect this valuable resource through no-till. The 20-page report, written by Penn State soil scientist Sjoerd Duiker and USDA-NRCS agronomist Joel Myers, provides detailed information on:

- Why tillage and erosion are harmful to your soil
- How to determine your soil quality
- The importance of cover crops
- How earthworms benefit your soils
- How to minimize and alleviate compaction in no-till
- Pros and cons of manure in no-till

After reading this free eBook, you'll understand how a no-till system can lead to dramatically reduced erosion, increased soil quality and improved water quality compared to conventional tillage.

Weed control, soil health go hand-in-hand

Although many landowners may not give much thought to weed control as a soil health measure, Gared Shaffer, SDSU Extension Weeds Field Specialist said the two go hand-in-hand.

"The same management practices which increase soil health, like planting cover crops or a diverse cash crop rotation, also can be deterrent to weeds," he said.

With the rise of herbicide resistant weeds, farmers want answers.

"Anytime producers do the same thing year after year the Earth's ecosystem finds a way around it to make it more diverse" said Dr. Dwayne Beck, manager of the Dakota Lakes Research Farm., during a September meeting attended by farmers, ranchers and area agronomy professionals.

Without this diversity, monoculture farming will give way to a possible proliferation of curtain weed species.

"This means a potential increase in weed species anytime monoculture crops are planted," Shaffer added.

Shaffer said many options are still within the hands of producers to control weeds with herbicides however, total dependence on herbicide is not sustainable in the long term, particularly with the products available in the market today.

"Herbicides were meant to be just a tool for weed control not the answer to weed control," he said.

Crop rotation, cover crops and livestock integration are other tools that help build soil health by increasing organic matter, soil biology and water infiltration.

Shaffer outlined the principals of soil health: Armor on soil surface, very limited soil disturbance, livestock integration, plant diversity, and soil covers.

If there is armor on the soil surface, such as organic matter or a cover crop, then weed seed germination and competition will be limited.

The more the soil is disturbed through any kind of tillage or other methods, more weeds, colder soils and dryer soils develop.

Livestock integration can elevate the need for pasture while increasing soil health and decreasing weeds through grazing at the proper time in your rotation.

With plant diversity, crop rotation between monoculture crops and planting cover crops can be the best way to deal with weeds, especially herbicide resistant weeds, Shaffer said.

"Finding the right crop or cover crop to compete with a curtain weed is the best option available instead of always reaching for that herbicide in your barn," he said. "Each producer must customize their rotation to fit their local ecosystem."

Despite challenges with consistency and repeatability, soil health testing is worthwhile

By Darrell Smith | Published on AgWeb Farm Journal Conservation and Machinery Editor

Someday you might be able to mark a spot in a field, return to it year after year and measure your progress improving soil health. After studying the state of soil health testing for four years, Farm Journal Field Agronomist Ken Ferrie has concluded such precise measurements are not yet available.

"However, that doesn't mean it's not well worth your time to conduct soil health analyses in the field and in laboratories," Ferrie says. "It just means you have to understand what the tests can tell you and what they can't."

With new tests being developed and new labs offering soil health analyses, the science of soil health testing might be where conventional soil testing was many years ago.

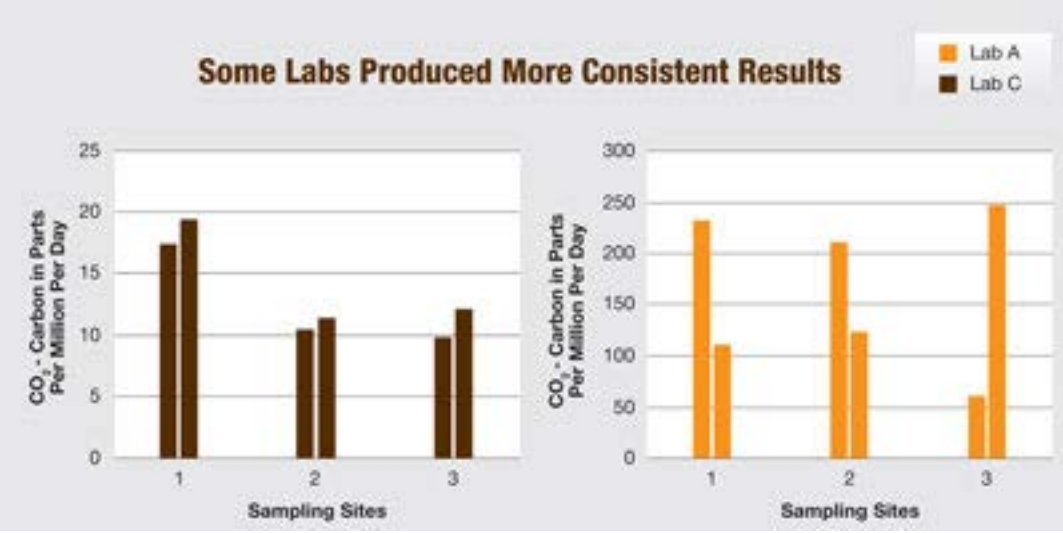
"With traditional soil testing, we understand labs use different extraction methods," Ferrie says. "Some labs report their results in pounds per acre, some in parts per million and some in the elemental form of nutrients. We know soil samples should be collected the same time every year or adjusted accordingly. If we use the same lab and collection procedure, soil test results are repeatable from year to year, and we can see trends over many years."

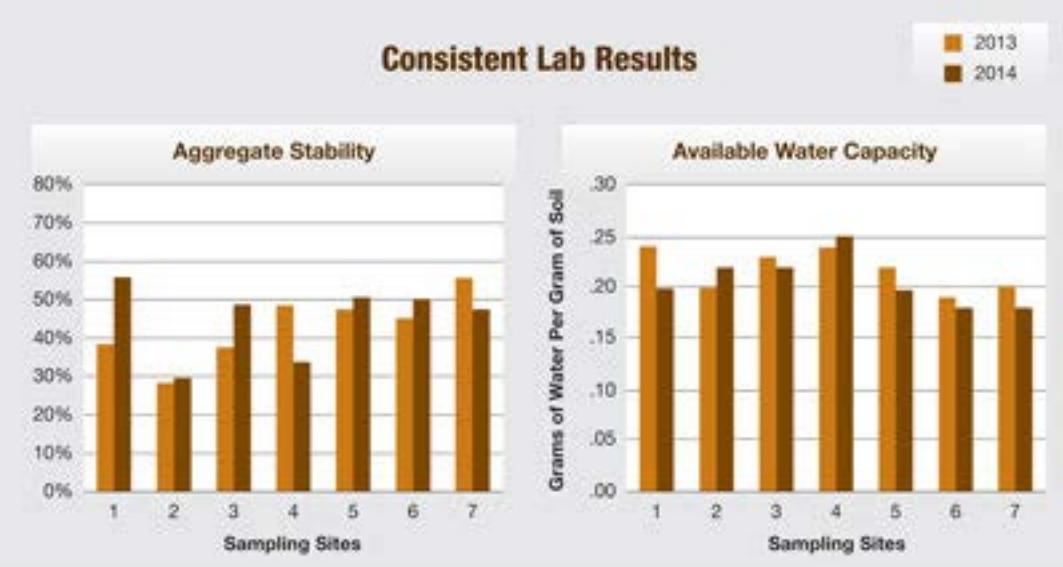
The soil test on which you base lime and fertilizer applications is one aspect of soil health testing. It analyzes the chemical component and then you, or your consultant, apply knowledge to interpret the results.

Eventually, Ferrie believes we might develop the same kind of repeatability for the other two components of soil health—physical and biological. But we're not there yet.

Ferrie obtained soil health information by conducting in-field and lab tests. Using GPS, technicians went to the same field location several times. They collected soil samples and conducted in-field tests to check for consistency of results over time.

The technicians used a soil penetrometer to analyze surface and subsurface hardness. They measured bulk density, water





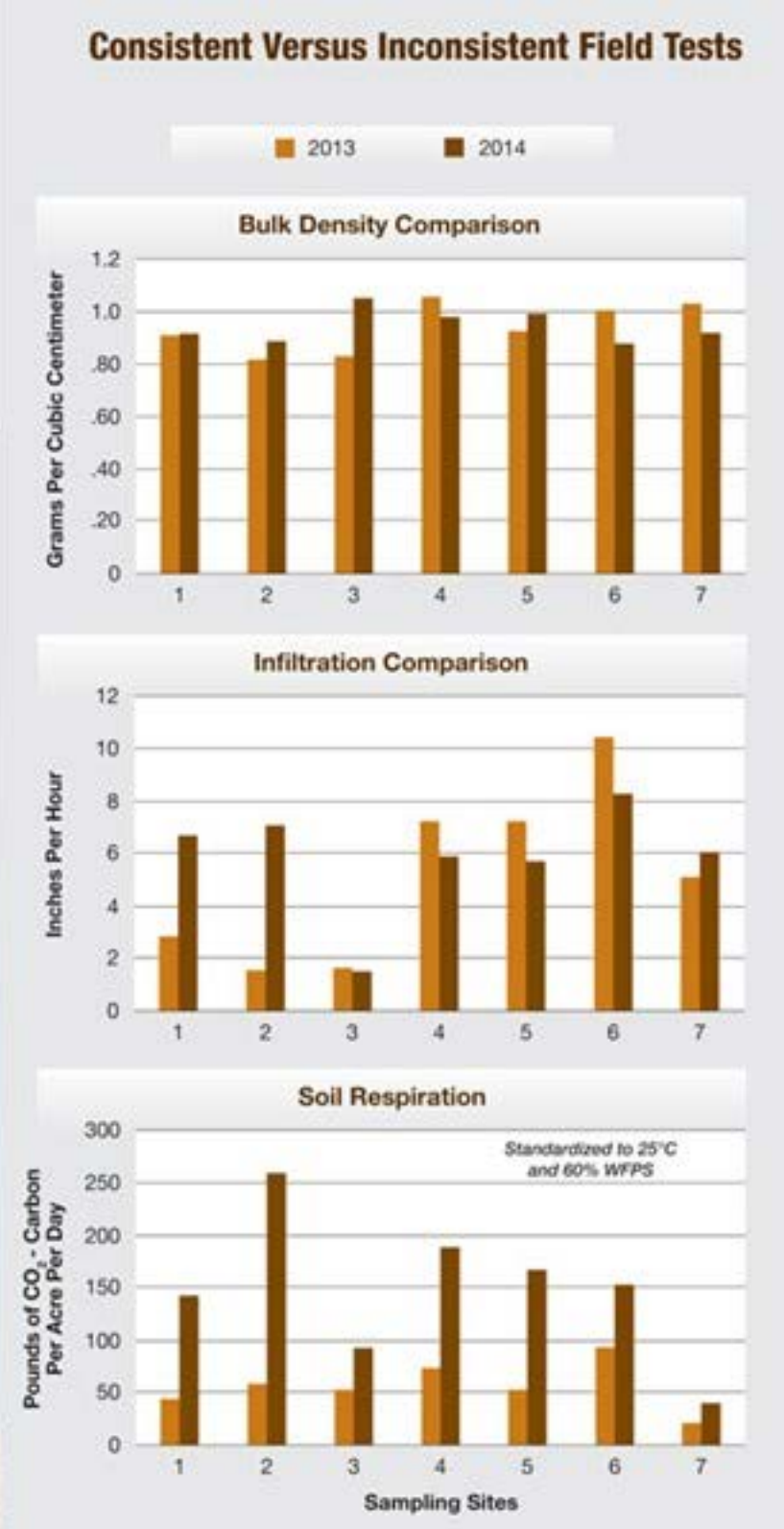
infiltration rates and carbon dioxide respiration, which indicates how many living organisms are present in the soil. They also conducted a slake test to measure the soil's ability to prevent crusting.

Soil samples were collected using identical procedures, then sent to several labs. The labs conducted physical health tests, such as aggregate stability and water-holding capacity. They measured chemical aspects of soil health, such as H3A phosphorus and potassium (H3A is a weak organic acid that indicates nutrients in the soil solution), water-extractable organic nitrogen, organic carbon and the amount of carbon dioxide released in a 24-hour period. They also measured biological aspects, such as microbial diversity.

Conduct in-field soil tests or collect samples at the same time each year, and note environmental changes.

In another aspect of the study, Ferrie sent two technicians to multiple soil health test sites. Using the same procedures 10' to 15' apart, they collected duplicate samples, which were sent to the labs to check for consistency within each lab.
In the field and in the lab, Ferrie found consistency and repeatability issues, though some tests were more consistent and repeatable than other tests.

In the field, Ferrie found if technicians used identical testing procedures at the same time, the results for water infiltration rate, subsurface hardness and bulk density were consistent, even when different technicians conducted the tests. However, not all of the results were repeatable from month to month or year to year.



"Subsurface hardness tests resulted in different numbers but identified the same dense layers from one year to the next," Ferrie explains. "The bulk density tests were repeatable from one year to the next. But water infiltration rate, carbon dioxide readings (even when standardized based on temperature, moisture and bulk density) and the slake test showed a lot of variability.

"For the most part, basic soil testing, organic matter content, aggregate stability and water-holding capacity were fairly

repeatable from year to year within the same lab," he adds. "Getting most other readings in a tight enough range to be comfortable was harder."

One obstacle to obtaining repeatable results from year to year is the influence of seasonal weather patterns. For example, even though all of Ferrie's soil samples were taken at the same time of year, sampling during a drought or during a wet season seemed to vary the results. Even conditions on the day of sampling seemed to have an effect.

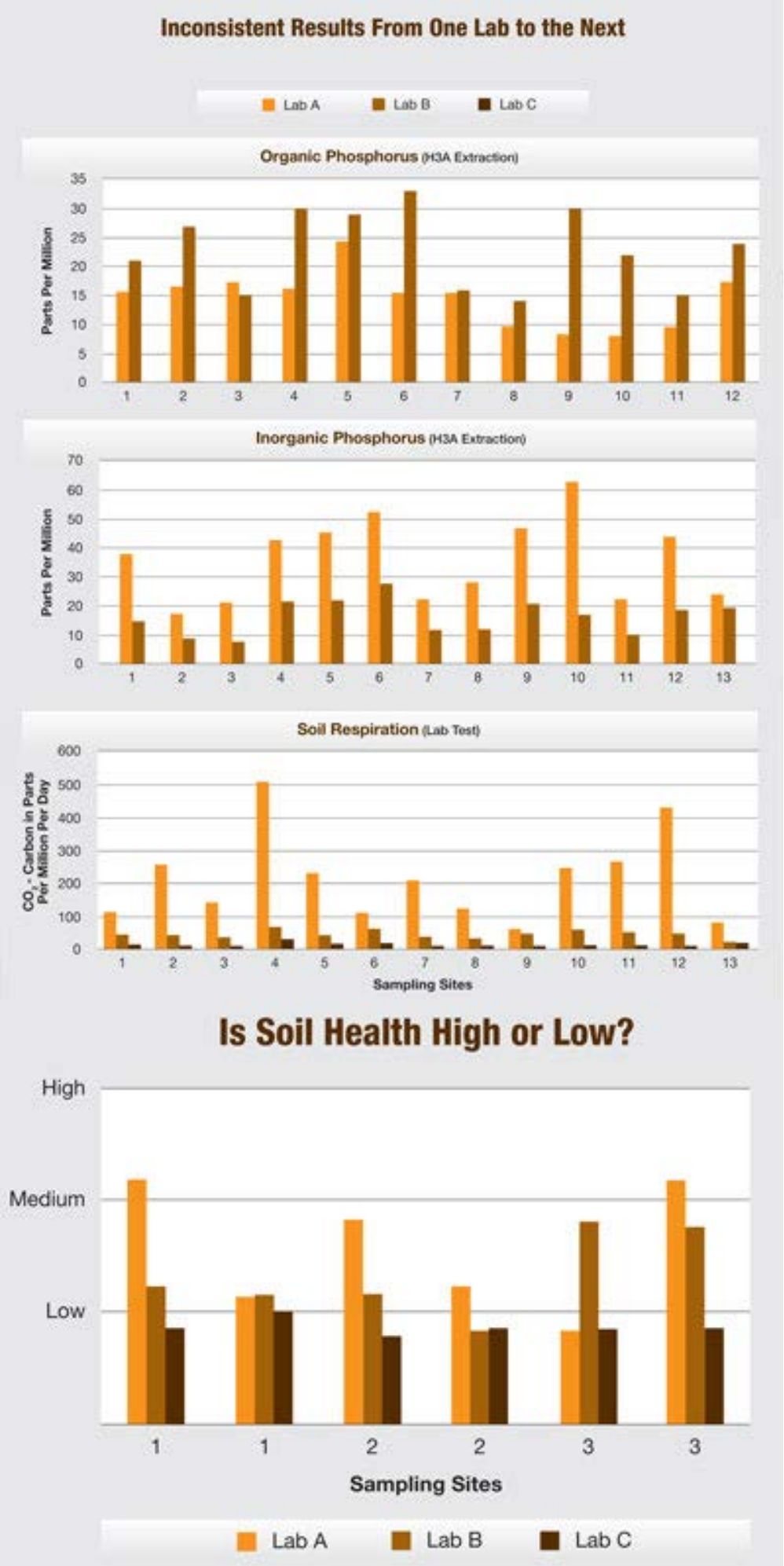
"For example, the results for H3A phosphorus [P] and potassium [K] varied significantly depending on the time of year and the soil moisture when we did the testing," Ferrie says. "The H3A P and K results are accurate on the day they are taken, but they seem to be constantly moving values. The same is true of the nitrate extraction test."

Among the labs, the volume of soil organisms and microorganisms (obtained by measuring the amount of carbon dioxide released from soil, or the "carbon dioxide burst") had the widest variance.

With one lab, results varied when an identical soil sample was submitted twice. This suggests the lab's procedures need to be more standardized.

Despite the challenges, Ferrie's research showed soil health tests provide valuable information to start improving your soil. Healthier soil will ultimately yield more, he emphasizes—but soil health improvements take time. "Sick soil usually didn't get that way in just one or two years—in many cases, it takes decades," he says.

"The good news from our research is we can look at soil health test results and pick out the healthiest and unhealthiest areas within a field," Ferrie says. "When we look at our yield maps and history, we can confirm the correlation between



higher-scoring soil and higher yield. Regardless of the lab, the healthier soil always received a higher overall score."

Equally important, soil health testing can help you zero in on the most cost-effective ways to improve soil health. For example, on one very sick soil, the farmer chose to correct acidity and soil density first because they are among the easiest problems to fix. After three years, the yield gap between that farm's unhealthy and healthy silty clay loam fell from 70 bu. per acre to 20 bu. per acre.

"From those aspects, soil health testing is a useful tool to help create the best soil health possible," Ferrie says. "We just might not be able to apply numerical scores as precisely as a standard soil test for nutrients and pH."

With soil health testing, as with traditional soil testing, there are factors to keep in mind as you interpret and apply the results:

- It's best to stick with one lab. Understand your lab's testing procedures so you will know if they make a change in the future (which could affect your soil health score). If you combine results from two labs, make sure you convert their reporting methods to one scale. For example, some labs report nutrients in parts per million, some in pounds per acre and some in percentages or a combination.

Some measure carbon dioxide respiration for a day and some for a week; some report it in pounds and some in kilograms. Labs use different scales for their overall soil health rating, so the standard for good health might be 14 on one scale and 40 on another.

- Separate your soil into management zones based on soil type and on whether the soil is well- or poorly drained. "Drainage makes a big difference in soil health," Ferrie says. When conducting in-field soil health tests or collecting samples for a lab, try to sample the soil at the same time each year. Be sure to note changes in environmental conditions from year to year (wet versus dry weather, for example.)
- Split some soil samples and submit both of them to your lab to see if their testing produces repeatable results. It will give you confidence in the lab's procedures.
- Think of your numerical soil health ratings as an index between good and poor health, rather than precise numbers that can be compared from year to year. "Because it's a living system, soil is affected by many things," Ferrie says.
- Rather than relying completely on numerical values, use your test results to separate each of your soil types into healthy and unhealthy zones. Just as you do with agronomic practices, use strip trials to compare soil health practices with your normal methods.

"Look at the differences between soil health scores, rather than the actual numbers (to account for differences caused by the seasonal environment)," Ferrie says. "Try to raise the yield of your sickest soil closer to that of your healthiest soil."

- Stay abreast of developments in soil health testing. "More labs are getting into soil health testing every year," Ferrie says. "This means new procedures will be developed, providing more options."

Building on the Systems Approach, the Soil Health series will detail the chemical, physical and biological components of soil and how to give your crop a fighting chance.

How Cover Crop Mixes are Revving up No-Till Systems

By John Dobberstein posted on April 16, 2016

From simple pairs to complex 15-way combinations, cover crop cocktails are helping no-tillers harness numerous soil-health benefits.

A single species of cover crop like annual ryegrass, cereal rye or radish, seeded alone, can produce a large number of benefits for a no-tiller.

But growers are increasingly beginning to work multi-species cover-crop mixes into their rotations to boost soil health, suppress weeds, remove compaction, support pollinators or increase options for grazing operations. These mixes often include 2-5 species but can go up to 12 or 15.

No-Till Farmer recently surveyed its readers on what cover-crop mixes they're working with, what they might try this year and what benefits they're seeing, and more than 100 responded.

Below we're sharing how 15 no-till veterans across the U.S. are using innovative cover mixes to their benefit. You'll find dozens more responses at www.no-tillfarmer.com/covercropmixes.

East of the Mississippi

Getting a Start

Last fall after corn silage, we seeded about 45 acres of a mix that included 50 pounds of rye, 5 pounds crimson clover and 2 pounds of radish. We broadcasted this mix, then immediately ran our Great Plains Turbo-Max vertical tillage tool over it, very shallow, to incorporate the seed.

Our goal was to control erosion, alleviate compaction, capture any excess nutrients and provide forage in the spring before we go back to soybeans.

We also seeded 45 acres after soybeans of a mix that had 50 pounds rye, 2 pounds balansa clover and 2 pounds radishes. We broadcasted this mix then immediately spread dairy slurry on it.

Our goals for this mix were the same, although I'm hoping that the clover does well enough to credit some nitrogen (N) from it. This is our second year with cover crops, so we're still very new to it. I have been to a few meetings and have read countless articles about cover crops, so I'm hoping we see immediate as well as long-term benefits from using them.

Next year, I would like to try a bigger blend of cover-crop species to see how that would work for us. I decided to use the rye/clover/radish blend because it seemed to be simple enough for us to try and also help us with our goals. I am really excited to try more because it just seems to make sense to farm this way.

— Gabe Ramsier, Sterling, Ohio

Helping the Roots

Last year after corn and soybeans, we seeded 20 pounds of cereal rye, 15 pounds of barley, 10 pounds of oats, 1 pound

each of Dwarf Essex rape and radish and 2 pounds of Alsike clover.
Our goal was to have something living in the soil at all times, and something dying when the hard freeze hit to feed the soil at different times and with different species.
So far, the benefit is the root depth we're seeing. We had one of best fall growing times in years and the covers look outstanding. We're seeing less water runoff and no erosion.
We'll continue to use our base grasses, but we're still looking for the broadleaves that might overwinter. We really like species that overwinter and come on quick in spring. Cereal rye and barley are good for their ability to overwinter and start in a cool time frame. Oats give us quick growth and something dying to feed microbes in early winter.
Rape, we hope, will overwinter and we'll see how it looks this spring. Radishes take up nutrients we apply as manure, and the earthworms really like radishes so we'll give them a little "Mountain Dew."
Cost, plus overwintering ability, is a driver for us when choosing mixes, as is how late they will germinate in fall. We know just a little growth in fall will normally allow for plants to take off well in spring. We're using a drill to apply our covers to get good seed-to-soil contact and get them started as fast as possible.
We like to have at least five different plants, but might expand as we find good value for the dollars spent.

— Jeff and Gordon Smiley, Greensburg, Ind.

Soil Health Goals

We've been using cereal rye as a staple in most of our mixes. I've had good results with mixing in Austrian winter peas with cereal rye. I seem to have much less winterkill in the peas, and I think it's due to the rye protecting it and helping to catch some snow to create an insulating cover.
Behind corn I like to mix in a little bit of clover with the rye. I can then allow this to grow late into the spring season. This does two things for us: First, it allows for more extensive root growth and proliferation. Also, by letting this blend grow as long as possible in the spring, the clover can get some size to it, since it's usually very small in the early spring.
I'm not using the clover to create N for the following crop, but rather for diversification of rooting architecture — and also for some organic N to help keep soil biology feeding on the rye and corn stover.
I have two goals with covers. One is to create soil cover from plant biomass to protect the soil surface from erosion, and also for the cover to create a food source for surface-feeding organisms. The main shallow feeder I'm focused on is the earthworms. My second goal is to have a growing root system as many months out of the year as possible to feed soil microorganisms, capture nutrients and help improve soil structure.
I've been frustrated getting returns from radishes that I've worked with due to winterkill, so this year I'm looking at rape to see if it can survive the winter and provide some growth in the spring.
I'm also looking now at combining some of my blends to make 3- and 4-way blends as opposed to 2-way blends. This was made somewhat easier by moving away from box drills to air seeders, so I can meter products separately instead of having to blend them. I have several combinations of cereal rye, clover, Austrian winter pea and rapeseed.

— Kyle Brooks, Wilkinson, Ind.

Triple Cover Threat

The first cover-crop mix we seeded last year was annual ryegrass, cereal rye, flax, hairy vetch, spring lentils, winter lentils, spring peas, winter peas and rapeseed. This was broadcasted into corn at V6 as we were applying in-season urea.
The goal was to improve organic matter while providing forage for our cow herd. This mix added 30 days to our grazing season and we saw a lot of deer feeding out there all winter.
The second mix we used was annual ryegrass, turnips, crimson clover, rape, radish, oats and German millet. This was seeded after a pea/oat forage mix that was cut for hay. The millet was cut above the cover crop and baled for hay, and we let the rest of the cover grow during the fall. This mix was used for forage, to break up compaction from haying and to scavenge nutrients. This mix had manure applied twice, before planting both times.
The third mix we used was German millet, oats, turnips, Japanese millet, rape, radish and oats, seeded after oats planted for grain. We custom grazed cows on these acres to help speed up nutrient cycling, remove some biomass and recover the cost of the covers.
We had the goals of adding organic matter, holding soil in place and reducing compaction, and we received about $45 per acre for custom grazing.
This year, the first mix that was planted into corn is going to be discontinued and replaced with a cheaper, less complicated mix of rape, radish, annual ryegrass and crimson clover. The second and third mixes will both be used again for the same purposes. We had real good luck with them, but we also had good late-summer moisture and a late frost.
I'm looking at adding a mix of winter and spring peas, radish and annual ryegrass after wheat that I can "green plant" into next spring.

— Ben Dwire, Arco, Minn.

Boosting Soybean Yields

Last year I used a six-way mix of crimson clover, hairy vetch, winter oats, annual ryegrass, cereal rye and soybeans. The soybeans were treated seed leftover from a prevented-planting claim on double-cropped acres last year.
I feel that cover-crop mixes can accomplish several things, such as compaction reduction and diversity in root struc-

ture. They also produce N, prevent soil erosion, build tilth and structure and increase organic matter. By using mixes the probability of winterkill is dramatically reduced, as is a complete failure due to chemical carryover from the cash crop.

But it takes time for the benefits to accrue. I seem to have better water-holding capacity and yields aren't quite as variable across soil types as they once were. I have reduced N rates in corn and have quit putting any N on soybeans. I think my soybean yields have increased 5-10 bushels per acre.

This year I plan to use a mix of crimson clover, hairy vetch, Austrian winter peas, buckwheat, winter oats, ryegrass and cereal rye.

— George Hupman, Loretto, Ky.

Clover Leads the Way

This past year we had three fields with mixes in them. The first field has oats, cereal rye, medium red clover, radish, soybeans and sorghum-sudangrass planted Aug. 15, 2015, after the processing sweet corn was harvested.

A second field has a mix planted Aug. 6, 2015, with sweet clover, medium red clover, sunnhemp, radish, purple vetch, sunflower, cereal rye, sorghum-sudangrass and soybeans, which was put in after winter wheat was harvested.

Another field was planted after the dry beans were harvested on Sept. 26, 2015. This field has Austrian peas, clover, oats, triticale and cereal rye. We did have a herbicide reaction with the clover, after applying Permit that June, which ended up terminating it shortly after emergence. It started out looking really good, then just kind of faded off.

After researching some of the chemicals used in season one did have a caution about clover or alfalfa. We did double-crop some sorghum-sudangrass after processing peas, which a local dairy operation harvested prior to our planting winter wheat in the same field.

Some of our goals are to recover nutrients, produce N while retaining what we applied, stimulate more arbuscular mycorrhizal associations, loosen up the soil, increase water infiltration, increase organic matter and prevent wind and water erosion.

Some of the obvious benefits we've seen early on have been more visual to start, with no water or wind erosion, an increase in earthworm activity, and less blowing and drifting snow.

— Donn Branton, Le Roy, N.Y.

Shifting the Focus

We've tried to shift to a multi-species approach to both broaden the benefits and limit the opportunity if one species fails.

Following corn going into soybeans, we seeded cereal rye, barley and rape with the goal of keeping plants growing all year long, as well as building organic matter, scavenging nutrients, providing a more desirable seedbed for the following crop, managing soil movement and erosion, and promoting some level of weed suppression.

Following soybeans going into corn, we seeded oats, Lynx peas, barley, annual ryegrass, crimson clover and cereal rye. Our goals were similar to the other mix, plus fixing some N. We're seeing a continued improvement in soil tilth and a significant yield response in soybeans on tight timber clay. We also believe we're seeing some weed suppression. We're still trying to document the cost benefits in corn, but our gut feeling is we're getting a 4- to 5-bushel yield increase.

One change for 2016 is we're going to try interseeding annual ryegrass and hairy vetch into V4-V8 corn. We're probably going to limit this to a 40-acre test, as it means some significant changes to our current herbicide program.

Seeding multiple species of covers seem to give us an edge against failure of the mono-species approach. We try to pair up species to provide a broader range of benefits over a longer period of time.

In our mix used after soybeans, for example, we use the oats for a quick cover, annual ryegrass for really deep root growth, cereal rye for a more aggressive top growth that's easy to terminate, and peas and clover for N production.

— Richard Johnson, Monee, Ill.

Mellowing Clay Soils

Last year I seeded winter rye, oats, radishes, crimson clover, Austrian winter peas, hairy vetch, sunnhemp and soybeans in a blend after wheat. After soybeans I seeded annual ryegrass, radishes and crimson clover, and I seeded cereal rye crimson clover after soybeans in other fields.

My goals are to build soil organic matter and soil structure on heavy clay soils here in northeast Ohio. Other goals are N fixation and having a mellow, green cover crop to no-till corn into in the spring.

My method of application is a broadcaster on my tractor, running right down through my 30-inch soybeans at 50% leaf yellowing. I've had very good luck and minimal crop damage.

This year I will use mainly rye and crimson clover, as they are two very durable cover crops with good root structure and are sure to loosen my tight soils and provide organic matter and nutrient recycling.

— Garrett Smith, Warren, Ohio

Executing a Plan

Our farm has progressed from planting a single-species cover crop to seeding up to 12-way mixes following wheat. These include various combinations of brassicas, legumes and grasses to help grow different types of roots and to maximize biomass.

We did a variety of cover crop mixes on our farms in 2015. After wheat harvest, we used our John Deere air seeder to seed a 12-way mix of cereal rye, annual ryegrass, radish, turnips, rape, kale, crimson clover, pearl millet, hairy vetch, Cahaba vetch, common vetch and Ethiopian cabbage.

Our goal is to have part of this mix winterkill and have some covers still growing in the spring to hold soil and nutrients in place, increase soil organic matter, feed soil biology, reduce compaction and improve soil structure and pore space so water infiltrates better and there's more oxygen in the root zone.

We'll continue the program this year. The large mixes continue to show positive results with building soil tilth, increasing organic-matter levels, promoting larger earthworm numbers and improving water-holding capacity.

On our farm, the type of species to use in a mix is determined by what the projected planting date is, what the cover crop is being planted into and the type of equipment available for seeding. It's equally important to have a well thought-out plan on how to effectively terminate growing cover crops in the spring.

— Allen Dean, Bryan, Ohio

Holding Onto Nutrients

We've applied cover crops by plane, drill and air seeder. In the fall, after the combine leaves the field, the Phillips harrow and air seeder are in the field, sometimes that same day, applying covers.

Last year our cover-crop mixes included oats and cereal rye; annual ryegrass, rape and oats; and a 7-way mix of oats, cereal rye, sudangrass, buckwheat, sunflowers, radish and medium red clover seeded on 60 acres of downed out soybeans, due to excessive rains.

Our goals with applying cover crops include both wind and water erosion control. Whether it's on our floodplain ground or our sandy soils, cover crops keep the soil in our fields and not in our neighbor's.

We look to hold onto as many nutrients as possible. Applying fertilizer in the form of hog and cattle manure, compost and 28% throughout the year gives plenty of nutrients to wash away if there isn't something holding it in the ground.

We also want covers to provide a source of food and habitat for the wildlife in the area, and to fight against compaction. All of our goals were met from our perspective.

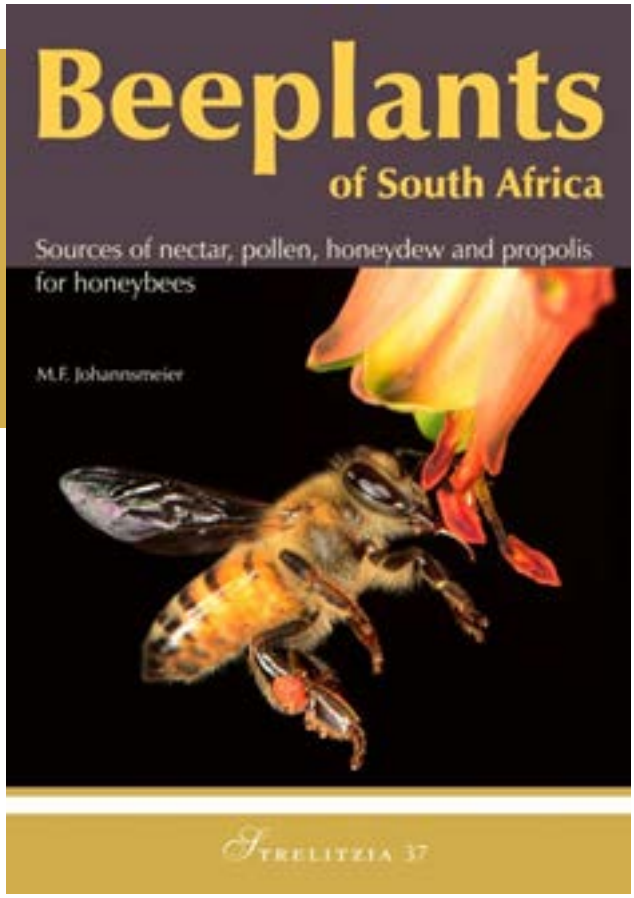
This year we will seed a mix again, with a combination of oats, cereal rye and annual ryegrass as our main mix. Buckwheat, radish, sudangrass and sunflowers will be thrown into some of our acreage to add variety.

The biggest factor in deciding on mixes is the time of year. We've found that our best cover crops have at least three different species, but the 7-way mix did very well this last year.

Cost is another factor to consider. We've raised our own oats and cereal rye for seed to help keep the cost down. Often you can find cheap or even free seed by talking with a seed dealer. Having a cover crop that doesn't winterkill gives time for plants to establish and lets us receive full benefits.

— Sarah Reese and Jon Reese, Peru, Ind.

"Beeplants of South Africa" book is launched



27 October 2016

"Without honeybees, our world would be a very different place: fewer food choices and more expensive agricultural production…
… but what ecological infrastructure underpins the managed honeybee industry in South Africa?"

Thousands of honey bee colonies are used every year to pollinate important crops across South Africa. More than 50 crops in South Africa reply on insect pollination. Our deciduous fruit industry, for example, relies on bees to pollinate blossom every spring.

But it is difficult for beekeepers to sustain their colonies after the blossom season is over. For honey bee populations to withstand pests (e.g. Varroa mite) and diseases (e.g. American Foulbrood), as well as some degree of pesticide exposure, a healthy diet is crucial for a fully-functioning immune system. Beekeepers use a variety of flowering plants species to provide forage (food) for their colonies through the year. Eucalyptus trees, certain crop species, indigenous trees and shrubs, and even urban gardens and roadside weeds are used to provide the pollen (protein) and nectar (carbohydrates) that the honeybees need to build a strong and healthy colony.

While the pollinator-dependent crop grower is reliant on the beekeeper for the pollination service their honey bees provide to their crops during the short flowering season, the beekeepers in turn are reliant on numerous and variable forage sources and habitats that can sustain their honeybee colonies throughout the year.

"As a result of author Martin Johannsmeier's years of research, we now have a broad understanding of honey bee forage needs and resources in South Africa, and this book is an excellent resource for anyone wishing to plant bee-friendly plants", says Tlou Masehela, who has recently completed his PhD on forage resources for honey bees through the South African National Biodiversity Institute (publishers of the book) and Stellenbosch University.

About the book
"Beeplants of South Africa" is a review of plants utilised by honey bees in the region. Data in the book shows a "bee plant value" for each plant species that gives an indication of how valuable the species are as honey bee forage. The book also contains additional information such as the flowering times of species, its common name, its morphology, its distribution and origin. Colour photographs of the main honey plants, as well as some representatives of important beeplant groups, are provided as a first step in plant identification.
The book contains an extensive index to the scientific as well as English and Afrikaans common names used in the publication.
Carol Poole, the Project Coordinator involved in SANBI's research projects, notes: "This book will assist beekeepers, farmers, landscapers, gardeners and restoration experts with more information about plants they can consider conserving or growing. We also hope that this book is valuable to many other audiences into the future as we learn to protect and grow our honey bee forage resources sustainably".

Who is Mr Martin F. Johannsmeier?
Martin Johannsmeier is a retired entomologist of the Plant Protection Research Institute of the Agricultural Research Council. His career began in the field of chemical insect control, but he was later transferred to the 'Government Apiary' in Pretoria, where beekeeping advice was the main line of work.

The emphasis later shifted to beekeeping research, and Martin tested new hive materials, determined factors that affected honey flows, investigated honey bee pollination of different crops, and surveyed nectar and pollen flora, amongst other research. The study of beeplants became his main interest, and he developed a simple method to establish the nectar and pollen value of a plant, using honey bee foragers. He continued with bee and flower 'watching' as one of his hobbies after retirement. Mr Johannsmeier is also the author of "Beeplants of the South-Western Cape" (with the first edition published in 1995 by the Department of Agriculture, revised edition published in 2005 by ARC's Plant Protection Research Institute handbook No.17), several journal papers, and was editor of the famous beekeeping handbook "Beekeeping in South Africa" (published in 2001 as Handbook No. 14 by the Plant Protection Research Institute, Agricultural Research Council, Pretoria).

The SANBI Graphics & Editing team members who worked on the book, together with the author (from L to R): Sandra Turck (graphic designer), Martin Johannsmeier (author), Alicia Grobler (editor) and Yolande Steenkamp (editor).

SANBI and the pollination and honey bee forage projects: This book contributes to the outcomes of the Global Pollination Project and the Honeybee Forage Project, both implemented by the South African National Biodiversity Institute (SANBI) between 2010 and 2015. The Global Pollination Project (Conservation and Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach) was implemented in 7 countries – Brazil, Ghana, India, Kenya, Nepal, Pakistan and South Africa. The project was coordinated by the Food and Agriculture Organisation of the United Nations, with financing from the Global Environment Facility (GEF) and implementation support from the United Nations Environment Programme (UNEP). The Honeybee Forage Project was a national project in South Africa funded by the Working for Water Programme, Environment Programmes, and Department of Environmental Affairs. Outputs of both projects are available on www.sanbi.org/pollination-honeybees and include case studies, academic papers, InfoSheets, and a short film featuring Martin Johannsmeier and Tlou Masehela. The SANBI staff members and students who worked on the Global Pollination Project and Honey Bee Forage Project include: Dr Ruan Veldtman, Dr Jonathan Colville, Ms Carol Poole, Mr Mbulelo Mswazi, Mr Tlou Masehela, Ms Annalie Melin and Mr James Hutton-Squire.

How to order the book:

The book (ISBN 978-1-928224-17-4) is available in hardcover A4. Price: R450.00. It can be purchased from the SANBI Bookshop by contacting Thomas Mapheza at bookshop@sanbi.org.za or T.mapheza@sanbi.org.za or Tel: 012 843 5000.

Further information about the projects and book is available from:

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Harnessing Conservation Agriculture to fight climate change

A major conference at COP22 discussed how encouraging farmers to switch to Conservation Agriculture (CA) can help countries meet their climate goals.

CA farmers and researchers from across the world met at the COP22 to share their experiences and discuss how they are doing their bit to stop climate change.

CA reduces carbon emissions by eliminating the tillage of land, thus keeping both carbon and valuable nutrients in the soil. Apart from this, by combining 'no-till' farming with cover crops and crop rotation, soil can act as a carbon sink, sequestering additional carbon from the atmosphere.

The Global Conservation Agriculture Network (GCAN) reiterated to policymakers at COP how farmers have the desire and the capacity to help and are doing great work for the climate but they need policies to support them. They pointed out how in 2015 alone, farmers globally switched an additional 10mn ha to conservation agriculture, reducing CO2 in the atmosphere by nearly 20mn tonnes. Currently 200mn ha of cropland are under CA farming globally and deliver the equivalent climate benefit of shutting down 100 large coal power plants. But advocates for CA are adamant that they can do more.

Benoit Lavier, a French farmer and member of GCAN, delivered a clear message to policy-makers attending COP22:"CA is a win-win situation. Farmers increase profitability while reducing the amount of carbon in the atmosphere. It's time our policy makers woke up to this huge opportunity."

"Switching to CA methods, including No-Till farming and the use of cover crops, can sequester one ton of carbon per hectare of soil each year. CA also greatly reduces emissions from agricultural machinery, improves soil quality and organic matter, and protects against erosion."

CA holds great potential for sustainable farming in Africa in the next 30 years. Aziz Zine El Abidine, a Moroccan farmer and GCAN member, told the conference, "If African farmers do not adapt, agricultural yields could decrease by 20 per cent by 2050. CA not only helps reduce carbon in the atmosphere, but it helps to protect farmers' livelihood from the impact of climate change."

Maria Beatriz Giraudo, President of GCAN, said: "The opportunity for CA is huge, in both the developed and developing worlds. And it's an easy win for politicians. Some simple, cost-neutral policy changes can help countries meet their climate targets. At the end of the day, everyone benefits."

http://africanfarming.net/crops/agriculture/harnessing-conservation-agriculture-to-fight-climate-change?platform=hootsuite

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