FARMING W I T H NATURE 2017/18

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ABOUT THIS REPORT

This report is based on the combined worldwide data relating to harvests of the financial year from 1 July 2017 to 30 June 2018 (2017/18).

All production, fertilisers, pesticides, and water use data reflects the harvest of 2017/18, although, for some regions, these input data were applied during 2016/17.

We use quantifiable measures for production, resource use efficiency, employee health and safety, and community outreach - all to promote good governance, sustainable production and to reduce risks.

With this report, Ingleby Farms & Forests ApS reaffirms its support of the Ten Principles of the United Nations Global Compact in the areas of Human Rights, Labour, Environment and Anti-Corruption.

In this, our fourth annual Communication on Progress, we describe our actions to continually improve the integration of the Global Compact and its principles into our business strategy, culture and daily operations. We are also committed to sharing this information with our stakeholders.

Mette Duedahl Høyer Chief Production & Sustainability Officer

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healthy food, but also protect and enhance the environment for future



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Sustainable Farming

Ingleby wants to be a world leader in sustainable farming.

Our goal is to produce sound, healthy food on thriving and living farms.

We love the land and are committed to the intelligent management of the Earth's resources. We want to grow more with less. We substitute input with knowledge. We work hard to grow our crops and rear our livestock, while actively promoting biodiversity, fertile soils, animal welfare and greener energy sources.

In Ingleby, we know that "we can't be green, if we are in the red." But we are farmers, not land speculators. We are not out to make fast returns by taking shortcuts or mining our farms.

Our approach to sustainable farming attracts high-quality and skilled colleagues. It gives us respect and legitimacy in our communities. And it makes our work more complex and interesting.

atural grasslands, Uruguay, Ph

We are long-term owners of land, managing **3** forests and **39** pasture, arable and mixed farms in **9** countries across **4** continents.

We grow over **30** different crops, and raise almost **150,000** heads of livestock every year.

> More than **3,000** people work on our farms and help us care for our crops, livestock, biodiversity and soils.

2017/18 Key Figures





CEO's Review

2017/18 has been the most challenging year in Ingleby's history. We have had severe weather events on most of our farms. Prolonged droughts and sudden heavy rainfall with flooding seems to be the new normal. This year, our geographic diversification did not protect us against production and financial losses. On the positive side, our investments in irrigation, drainage, river protection and further crop diversification are paying off.

We want to improve biodiversity. That is why we count birds on our farms, because they are a clear indicator of biodiversity.

We also try to link up environmental areas such as animal habitats, lakes and hedgerows and look at how insects, birds and mammals move in the landscape. It is all about working with nature, not against it.

INGLEBY OUTLOOK

Ingleby has more than quadrupled in size in my time and it will soon be time to consolidate. We have a lot of interesting development projects underway. In ten years' time we will have moved into more highvalue crops, moved up the value chain and become better known as a brand.

Our environment is under increasing pressure from pesticides. Insects are diminishing at an alarming rate, which has negative effects on the wider food chain. We experience weed, fungal and insect resistance against pesticides. We also see an increasing number of pesticides under scrutiny from affecting bee death to human health.

As a consequence, Ingleby has undertaken the goal of becoming synthetic pesticide-free by 2030. We are fully aware that this goal will be a huge undertaking, but we do believe it is achievable.

> So when you enjoy our produce, you are promoting biodiversity and fertility as well as supporting a better world for the future generations.

Hans Henrik Koefoed Chief Executive Officer

ADAPTING TO CLIMATE CHANGE

We are mitigating the increasingly volatile weather by additional contour cultivation, grass waterways, river protection and drainage as well as enhanced and new irrigation systems. Our latest addition is 324 hectares in Argentina.

We also focus on more resilient crop rotations with an aim of minimum 5-7 crops per farm, soil enhancing cover crops included. In addition, we work to integrate more livestock on most of our cropping farms to help buffer any future climatic and economic volatility.

Soil is Ingleby's core asset and an important ally in adapting to climate change. We have a continued focus on soil improvement.



New technologies, such as variable rate applications in the fields, will help optimise our lime and fertiliser use, while at the same time improve our soil quality.

TALENTED PEOPLE

Our people is another core asset in Ingleby. We have farms in four continents with different cultures, people of different ages, gender and lots of different talents.

We want to retain skilled, motivated employees. To do this, we provide inspiring and safe work environments. As a result, we have a low full-time employee turnover.

> We also want to attract young, well-educated people to our farms. We need to make sure the next generation is as excited about agriculture as we are.

> > The greatest challenge is to find the truly multitalented, but good people do join us because of our long-term sustainable vision for agriculture.

FARMING FOR THE LONG TERM

Ingleby does not think of farming as a 10-year investment. To turn a farm around takes 25 years, and to get it really in shape takes 50 years. Our perspective is 150 years, or more. So, we have to farm sustainably and we want to show how it is possible to do that and make a profit.





interaction of many things, such as soil, unpredictable weather, pests and markets. If you can get all those absolutely right, it is very satisfying. But in a career of forty or fifty years, you will only achieve that four or five times.

HANS HENRIK KOEFOED Chief Executive Officer



SUSTAINABLE FARMING // FARMING WITH NATURE

2017/18 Highlights

RECORD AVOCADO HARVEST

In 2017/18, we increased our avocado production in Peru by 94% from 2016/17.

The demand for avocados continues to increase worldwide.

Ingleby is well positioned with high quality avocados and trees in optimal condition. We have a firm focus on next season and new potential markets.





IMPROVED SAFETY

In 2017/18, we reduced the total number of accidents worldwide by 21% and near misses by 50% compared to 2016/17.

This positive development is due to our continued focus on health and safety at all levels in the organisation.



INCREASED PRODUCTIVITY

In 2017/18, our row crop production decreased by 32,000 tonnes due to the volatile weather worldwide, but we continue to increase our productivity compared to the last five-year average.

Our livestock production increased, due to our decision to raise all male dairy calves for dairy beef production.



CELEBRATING 20 YEARS OF SUSTAINABLE FARMING

In 2017/18, Ingleby celebrated its 20th anniversary.

Since 1998, our never-failing vision of being world-leading sustainable farmers has continuously driven the positive development of our farms.

We are long-term owners of land. We do not farm to quit. We farm with a 150-year perspective. So the first 20 years are just the beginning of Ingleby's story.



IMPRESSIVE IRRIGATION

Worldwide, we are increasing our use of irrigation. We now have a total of 6,166 hectares or 14% of our arable land under irrigation.

In Uruguay, our 2017/18 corn harvest under irrigation was the largest ever, with record yields of 12.2 tonnes per hectare. In comparison, our average corn yield under rain-fed conditions is 4.9 tonnes per hectare.



BIOCIDES & BENEFICIAL INSECTS

In Peru, we have increased our use of beneficial insects and nematodes, natural biocides and fertilisers, and we have also begun researching the use of symbiotic fungi to the advantage of our crops.

We use up to 50 different biocides and natural fertilisers.



Ingleby Worldwide

As of 30 June 2018, Ingleby manages 100,565 hectares worldwide; 84,668 hectares of farmland and 6,977 hectares of production forests.

PERU 2,017 ha

PRODUCTION Avocados, Table grapes, Blueberries Stevia Test crops

1,825 ha PRODUCTION

USA

Pistachios



ARGENTINA 12.519 ha

PRODUCTION

Barley, Canola, Corn, Sorghum, Soya, Sunflower, Wheat Grass seeds Aberdeen Angus cattle



URUGUAY 27,217 ha

PRODUCTION

Aberdeen Angus cattle Barley, Corn, Oats, Sorghum, Soya, Wheat Grass seeds, Lotus seeds



ROMANIA

LATVIA

6,744 ha

19,416 ha PRODUCTION Barley, Canola, Corn, Peas, Sorghum, Soya, Sunflower, Wheat Grass seeds Blueberries

Aberdeen Angus cattle Timber (Beech, Oak, Lime, Hornbeam, Spruce, Fir, Ash, Cherry)

AUSTRALIA 21,269 ha

PRODUCTION

Barley, Broccoli, Canola, Broad beans Green peas, Potatoes, Wheat Grass seeds, Clover seeds Lamb, Wool, Aberdeen Angus Cattle, Milk, Dairy calves



15 Ingleby Goals

To support our ever-evolving goal of sustainable farming, we have developed the 15 Ingleby goals. These are also part of our operational manual, the Ingleby Guidelines, which addresses aspects as diverse as sustainable irrigation, responsible pesticide use, bird monitoring, tree planting, management of invasive species, waste management, wildlifefriendly fencing, animal welfare, and so on.

Improve annual

key production and

efficiency metrics

by 1-2%

Farming is not a competitive business. Ingleby does not profit, if our neighbours' crops fail or if regional ecosystems collapse. We want farming communities to thrive – ecologically, socially and commercially. That is why we made our Ingleby Guidelines, which we sometimes call the Ingleby Green Bible, open access, on our website. We hope that it will help other farmers. And by making it open access, we hold ourselves responsible to the world.

LISBET RAUSING Founder & Non-Executive Director

Grow natural, native grass waterways in erosion prone areas

6

9

Promote a scruffy look in the open landscape

Allow 10-metre buffer strips along all major streams, rivers and lakes

5

10

Δ

Spend 2% of yearly

working hours on

training

Grow a mix of insect/bee plants

3

Keep and plant

solitary trees in

the landscape

11

Develop welcoming avenues along farm main driveways

13

14

Convert 10%

of each farm's

area to natural

habitats

7

No mechanical soil treatment on erosion prone slopes

Convert 1% of each farm's area to water habitats

15

Improve operating EBIT by 2% per year

12

Surround larger buildings with appropriate planting

> Build topsoil by 2mm per year

2

Contour cultivation in steep areas

8

UN Sustainable Development Goals

As a member of the UN Global Compact, Ingleby is aligned with the 10 universal principles on environment, human rights, labour and anticorruption. Ingleby also supports the UN Sustainable Development Goals (SDGs). We have identified nine SDGs that apply to our farming and forestry operations, and where we can have the greatest positive impact.

GROWING FOOD



End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

CLIMATE & RESOURCE USE



Ensure availability and sustainable management of water and sanitation for all.

- 6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of un-treated wastewater and substantially increasing recycling and safe reuse globally
- 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
- 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes

(0)



7.2 By 2030, increase substantially the share of

Ensure access to affordable,

reliable, sustainable and

- renewable energy in the global energy mix
- 7.3 By 2030, double the global rate of improvement in energy efficiency



Ensure sustainable consumption and production patterns.

- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources
- 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
- 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment
- 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
- 12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle



Take urgent action to combat climate change and its impacts.

13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries

ENVIRONMENT



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

- 15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry lands, in line with obligations under international agreements
- 15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
- 15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world
- 15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
- 15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
- 15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species
- 15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
- The SDGs 6.3, 6.6, 12.2 and 13.1 also apply to Environment

LABOUR, GENDER & HUMAN RIGHTS



Achieve gender equality and empower all women and girls.

- 5.1 End all forms of discrimination against all women and girls everywhere
- 5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

- 8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value
- 8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms
- 8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment

ANTI-CORRUPTION



Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective. accountable and inclusive institutions at all levels.

- 16.5 Substantially reduce corruption and bribery in all their forms
- **16.6** Develop effective, accountable and transparent institutions at all levels

Growing Food

We are farmers and proud food producers. From our land, we might have grown the potato, steak or avocado you enjoyed for dinner last night.

Today, there is an abundance of food in the world. But by 2050, the world population will have grown to around 10 billion people, all needing food.

The area of good, productive farmland will not increase. On the contrary, cities and infrastructure will take their share of the existing farmland.

So we are on a mission. We want to show that we can increase the production of healthy, wholesome food from the same area of land, while supporting financial results and protecting our soils and the environment.

Today, our food production totals **571,000** million calories.

This can feed **626,000** people for a year based on an estimated daily intake of 2,500 calories per person.*

This means, that on 1,100 m², or about 2 basketball courts, we can feed 1 person for an entire year.

*) Provided our products represent the recommended balance of carbohydrates, protein and fats

GROWING HIGH QUALITY CROPS

We produce a wide range of horticulture crops. These currently include pistachio nuts, avocados, table grapes, blueberries, broccoli and onions. We also test potential horticulture crops such as stevia, organic bananas, kiwifruit, and cacao.

Our main row crops are wheat, soya, barley, corn and canola. Other row crops include sunflower, sorghum, and rye as well as sugar beets, beans, fodder crops, potatoes and peas. Our seed production includes clover, oat and grass seeds. Our annual row crop production exceeds 200,000 tonnes.

INCREASING YIELDS

Over a 10-year period, we aim to increase our yields by 1% annually while still being profitable and environmentally sustainable. So far, we have achieved this goal.

On average over the last eight years, we have seen a 4% annual increase in yields. This is the result of improvements to our soils, balancing our nutrient management, rotating crops and encouraging double cropping where possible. All combined with hands-on management.



CROP PRODUCTION



CROP DIVERSITY

We constantly seek to improve our farming systems and diversify our crop rotations with more crops including cover crops, as well as integrate livestock production into the crop rotations.

Cover crops and increasing diversity drives a more resilient agro-ecosystem. We will need less pesticides because it supports beneficial organisms, and reduces the ongoing problem of increasing weed and insect resistance to pesticides. Diversity also helps address the challenge of maintaining soil organic matter and associated favourable physical properties in our soils.

Over time, increased diversity will provide higher yield stability and less nitrogen fertiliser input requirements where we use nitrogen fixing crops in the crop rotation.

CROP DIVERSITY AS % OF AREA







Soil Improvement & Conservation

If managed properly, healthy fertile soils retain rainwater, prevent waterlogging, increase biodiversity and crop production, while also serving as a carbon sink. To build such healthy soils, we have adopted conservation agriculture practices as vital elements in how we farm.

> No-till means leaving the old crop in the

drilling holes in the soil to

plant the next crop.

This way the soil is left

harvest to planting.

No-till is the general farming system of the fertile South American plains, the Pampas, in Argentina, where soils are well-suited for agriculture, but also fragile and prone to erosion. In Ingleby, we of course want to protect our soils from erosion and depletion of soil organic matter, but we also want to build soils, which is why we have taken the no-till system one step further.

So on top of the no-till system, we use diverse crop rotations. We strive to have 5-7 crops in rotation, including cereals, legumes, oil and grass seeds. We also integrate livestock in the rotations. This diversity helps us cover various growing seasons and cycles, root depths, and nutrient needs. Furthermore, we provide different spacing and canopy coverage, to break the life cycles of weeds, insect pests and diseases, which in turn decreases our use of pesticides.

When a crop is no longer growing, we keep our fields green by using cover crops, which reduces soil degradation, prevents leaching and, once terminated, serves as organic mulch for the following crop.

In fact, the soils on Ingleby's Argentine farms are occupied by either a main- or cover crop 80% of the year as opposed to 45% in average Argentine farming systems without cover crops.

We are currently conducting a study on the effect of four different management systems on soil fertility, soil nutrient balance, greenhouse gas emissions, and crop productivity in Argentina. The study is still ongoing, but preliminary results show that, of the four systems tested, the sustainably intensified management system, which is the one adopted by Ingleby, emits the least amount of greenhouse gas, has the highest nutrient efficiency, and improves overall soil fertility while also being the most productive.

So, growing more crops on the same piece of land, while also protecting the soils actually comes out as the most beneficial system.





Soil is a non-renewable resource, which is not easily replaced. In Ingleby, we want to build healthy soils with high organic matter content, which can store large amounts of water. This is crucial for crop production and improves our farms' resilience to floods and droughts, while also acting as a carbon sink.

> METTE DUEDAHL HØYER Chief Production & Sustainability Officer

NO-TILL AGRICULTURE // OVERVIEW



A narrow seedbed is prepared by drilling holes in the soil in which the seeds are planted.

ADVANTAGES

- > Excellent erosion control
- > Soil moisture conservation > Minimum fuel and labour costs
- > Builds soil structure and helps soil fauna and biodiversity create healthier soil



WHY

No-till saves time, energy and costs. The soil structure improves with less compaction. The crop residues left on the soil reduce evaporation, while helping to absorb water and reduce run-off.

DISADVANTAGES

- > No incorporation of plant material
- > Increased dependence on herbicides
- > Slow soil warming on poorly drained soils

Farming Technology

At Ingleby, we pride ourselves on our innovative approach to agriculture that drives us to be better farmers. We constantly seek out new methods and technology that improve our efficiency, productivity and profitability. For this purpose, we established the Ingleby Technology Committee (ITC) to identify, evaluate and implement new technology. The ITC allows Ingleby teams to keep up-to-date with developments, share information and exchange ideas across regions and production systems.

The last decade has seen an unprecedented increase in the power, portability and price performance of technology, with many technologies converging and accelerating the rate of change. In agriculture, the major change has been the development of technology, which makes precision agriculture possible. Sensors and networks to observe, measure and respond to in-field variability can now enable farmers to make better informed decisions and provides greater certainty in outcomes.

Future advancements in agriculture will be centred around precision agriculture leveraging multiple exponential technologies such as robotics, drones and deep data. Sensors will be embedded in every conceivable part of production, automating many processes and generating vast volumes of data. Analyses of this data will let us further refine our holistic approach to agriculture - increasing yields while at the same time improving the environment.

SOIL SENSORS

In our blueberry production in Romania and our irrigated row crops in Uruguay and Argentina, we use soil sensors to track real time moisture content. This allows us to respond instantly to changes in soil moisture and vary irrigation according to the needs of the crop - minimising water use and providing optimised growing conditions.



DRONES

Drones have quickly risen from an obscure toy to important tool thanks to advancements in software, batteries, sensors, electric motors and processors.

We use drones to monitor crop health (pests, disease, weeds), and spot inconsistencies which may suggest soil compaction or water stress.

We see multiple future uses for drones from crop nutrient assessments, yield estimates and monitoring threatened species and habitats.

BIOMASS IMAGERY

We use biomass imagery, to give us real-time crop development data, which allows us to differentiate our input applications to where they are best utilised and most needed.





In fact, in some of our fields in Western Australia we have achieved uniformity of the soil quality to the extent that we can now apply the same rate of fertiliser through-out the field at maximum and homogenous yield response rate.





DETAILED SOIL MAPS

In Western Australia, we have used electromagnetic pulse technology and radiometry to create detailed soil maps.

Based on these maps we are using variable rate technology to optimise sowing density, crop nutrition, crop protection, soil amelioration and irrigation.

Our Livestock

REARING HEALTHY ANIMALS

We raise more than 110,000 sheep, 30,000 cattle and 3,500 dairy cows.

Our sheep are mainly Perendale, Romney and Finnsheep crossbreeds. Our beef cattle are mainly Aberdeen Angus and our dairy cows are Holstein-Friesians.

They are all free-range because we believe that grass-fed livestock systems have multiple benefits such as superior animal welfare and, where we integrate livestock grazing into our crop rotations, it reduces soil erosion, improves our soil structure and organic matter, thus decreasing the need for synthetic inputs. It also protects open grazed landscapes, which often have high biodiversity.

Our total livestock production reached 6,001 tonnes in 2017/18, equal to 180 kg per hectare. This includes 2,612 tonnes of beef (CWT), 1,458 tonnes of lamb, 313 tonnes of wool, and 1,446 tonnes of milk solids (or 18.9 million litres).

TONNES PRODUCED





ANIMAL WELFARE

We follow strong ethical practices on how we treat and handle our livestock to ensure the best animal welfare.

To track animal welfare, we use reproduction and mortality rates. We aim for a reproductive efficiency of 88% for cattle and 135% for sheep by 2018/19. We have reached the goal for calving and are approaching the goal for lambing. The mortality rate for our cattle is 2% and for sheep 3%, where our goal is to be under 4%. For our dairy cows, we include other animal welfare factors, such as body condition score and disease incidence in the herd.

We want healthy, balanced livestock production systems and healthy livestock with a minimal use of pharmaceuticals.













Finding the Perfect Balance

At our mixed farm Mt Elephant in Victoria, Australia, we have made several changes to our production system. This is improving our ewe performance and increasing the number and quality of our lambs.

Mt Elephant is located in a unique area of Australia known as the Victorian Volcanic Plain. The landscape experiences hot, dry summers with cool, wet winters.

Between these extremes, the window of spring brings a flush of pasture growth, and timing around this period is critical for good sheep and cattle production.

Over the past few years, Mt Elephant has focused on building ewe numbers. 2017/18 was a good year for our lambing business, due in part to 1,500 extra ewes but also improved lamb survival.

Our goal is to lift production up to 10,000 breeding ewes. To ensure this works well within our stocking capacity, we need to make the most of the spring grass when it is available. The other option is to convert crop land to grazing. Mt Elephant is an example of how an integrated cropping and livestock system can better buffer economic turbulence. As cereal prices declined while the red-meat market strengthened, more land area has returned to livestock, growing fodder crops of chicory and clover. This is a double win - a respite for soils while providing quality feed for our lambs.

As with other sheep stations, Mt Elephant is also juggling factors such as labour demands, field size and structure, and animal survival.

Where the ideal lambing field is 20 hectares in size, many on Mt Elephant are between 50-70 hectares, sometimes holding up to 700 twin-bearing ewes. Dividing these fields is not simple because of access to water and rocky barriers spread across pastures.

Having ewes lambing in larger areas such as these requires clever management and more vigilance to ensure ewe and lamb welfare.

The lambing period is labour-intensive. The ewes are checked daily to assist in difficult births or should any become cast. It is a balance between reducing the mortality of the ewes, without disrupting the mobs and causing lambs to miss-mother.



Ewe mortality over lambing can range between 3-15%, though we aim for less than 4%. In 2017/18, we were on target, which is an achievement for a farm of such scale.

Going forward, we will focus on ewe genetics to keep the most productive animals in the system.

We will also seek to add more value to our lambs, possibly with irrigation. Unlike Ingleby's Tasmanian farms, where irrigated pasture and fodder allow lambs to reach the heavier weight category, Mt Elephant's short season means most lambs are sold at 12-17 kg carcass weight. Extra irrigated feed at critical times would be another means to raising happy, healthy lambs.

Raising Our Male Dairy Calves

On Ingleby's Clovelly Dairy farm in Tasmania, we think differently. We are among a handful of farms (less than 1% of Australian dairy farmers) who choose to raise male calves for beef production. This is a matter of pride and principle; born out of the ethics of our dairy operation, and our sustainability philosophy.

Adapting the business to raise male calves has taken significant investment and risk, and our teams face immense hurdles, financially and logistically.

We are hand-raising 3,500 calves, of which 1,250 male calves, in the space of a few months and sometimes up to 100 calves are born each day. To cope with such an influx, we have four calf rearing sheds and up to 14 employees looking after them, most of whom are women.

Care and patience are essential for such a delicate and demanding job where teams are on-hand for up to 12-hour shifts. Calves must be taught to feed, vaccinated, and weaned, all while their health is constantly monitored to prevent the breakout of diseases such as salmonella. This is particularly challenging given the sheer number of animals.

We want to be able to raise and feed all calves to a high standard without sacrificing their health. Keeping the mortality rate below 3% is a focal point. It is important to us that the calves are never separated by gender. All receive the same level of care.

After 21 days in the calf sheds, our calves move out onto the pastures and at 85 days old are slowly weaned. Our male calves, fit and healthy, move to another Ingleby farm where they spend the next 12-18 months grazing free range on pastures and fodder crops.

Our commitment to raising our male dairy calves has added a layer of complexity to our production, but the new practices of dairying are reflective of what can be achieved. Our current system is not without its faults. We are still fine-tuning to reach the desired returns.







Dairy beef is of comparable quality to traditional beef but consumers have long seen it as an inferior cut.

to be an inspiration to other dairy

farmers.

We hope that being an ethical producer will make us a preferred supplier of both quality milk and beef.

Ultimately it is the informed consumer who will drive change within the dairy industry by supporting dairy farms that raise male calves, and purchasing high quality dairy beef.





DAIRY BEEF

We are working to raise high quality dairy beef that can sell alongside prime beef, so that we can return value to male dairy calves.

Climate & Resource Use

As farmers, we are dependent on sunshine, water, soils and nutrients for the optimal growth of our crops and pastures.

Changes in seasonal weather patterns and the increased frequency and severity of extreme weather events is a risk for food production - both for Ingleby as well as global food production. Adapting to a changing climate is becoming increasingly important.

At the same time, we recognise that we as farmers are part of the solution. Therefore, we constantly work to optimise our resource use. Over a 10-year period, we want to improve our energy efficiency by 2% per year, and fertiliser and water use efficiency by 1% per year, thus reducing our climate footprint.

We use about **27,650** megalitres of water for irrigation each year. Irrigation is responsible for **56%** of our global use of electricity.

Our total Greenhouse Gas emissions in 2017/18 was **34,698** tonnes CO₂.*

We annually use **191,964** GJ of energy. Approximately **39%** of this comes from renewable energy sources.

*) Energy and inputs such as N, P, K fertilisers and pesticides calculated as CO₂. No biological sources or sinks included

GREENHOUSE GAS

Farming is responsible in part for rising greenhouse gas emissions, but we can also help solve the problem.

Much of agricultural greenhouse gas emissions is attributed to intensive livestock production as well as ploughing the soil. Ingleby never ventures into intensive livestock production and we always graze our livestock free-range on healthy pastures.

We never clear vegetation to create pastures. Instead, we plant trees and bushes that store carbon. We also build soil carbon and plough less than 5% of our land.

In 2017/18 we emitted 34,698 tonnes of CO₂ equivalent across all our farms. This equals 0.4 tonnes of CO₂/ha or 5.7 tonnes produced per tonne of CO₂.

We monitor and calculate our CO₂ emissions from our use of electricity, diesel, gasoline, propane and natural gas. We also include emissions from agricultural inputs such as fertilisers and pesticides. Currently, we do not measure biological sources from our livestock or ploughing. Nor do we include carbon sinks such as our forests, plantations and natural grasslands. But from peer-reviewed studies we know, that greenhouse gas emissions from grass-fed livestock systems are lower than in feedlot systems.





MITIGATING CLIMATE CHANGE

On each farm we monitor weather conditions, to help analyse and deal with the changing and highly variable climate on a daily basis, but also in the long term.

We mitigate the effects of changes in climate through investments in irrigation, drainage and erosion control measures.

We maintain fertile and well-structured soils with optimum amounts of air, water, nutrients and biological activity. Healthy soils sequester carbon and reduce greenhouse gas emissions.

We use a variety of crops and cover crops as well as further integration of livestock in our crop production as risk mitigation. It is crucial that our soils are always covered by some sort of green cover.





Extreme Weather

Farmers are notorious for complaining about the weather. This is because we can be heavily affected by situations we have no influence over. Something as simple as just a few weeks of prolonged drought or rain can easily be the difference between profit and loss. In 2017/18, most of our farms worldwide were affected by extreme weather.

ARGENTINA

The family of one of our farm managers has been farming in South Buenos Aires, Argentina, since 1916. The climate data they have collected through four generations clearly show how extreme weather events are increasingly becoming "the new normal."

Between 1916 and 2005, receiving 100 mm of rain in one day was something that happened once every three or four years. In 2017 alone, we had five separate days with 100 mm rainfall on Ingleby's farm Doña Hilda, and three days with over 150 mm. Following these abnormal storms, two tornados crossed some of our farms. leaving substantial infrastructure and crop damage.

To make matters worse, these extremes cases were all followed by a period of severe drought, causing soil salinisation. This is a side effect of the drastic ups and downs of the water table where salts accumulate in the soils in concerning amounts.

PERU

In 2016/17 the weather phenomenon, El Niño costero strongly affected the Peruvian North Coast. We received nearly 1,000 mm of rain over three months on Ingleby's farms Olmos and Motupe.

In 2017/18, we have had less sunshine than normal and experienced changed temperature patterns. Our crops were also still affected by the previous year's high rainfall. While our table grapes yielded much less, our avocado plants were thriving.

URUGUAY

Uruguay experienced a tough season during 2017/18, as the whole country suffered a severe drought over the summer from December to April. The situation peaked in February, when the government declared a state of agricultural emergency.



February and March had extremely low rainfall during the critical stages of soya. The situation escalated after periods of excessive rainfall in April that damaged the summer crops further just before harvesting.

Sensing the need for stability in the face of such droughts, we constructed our first irrigating dam back in 2014, and have completed another two dams since. The stark difference irrigation provides has never been clearer than during the past drought, where our pivots were running at full capacity.

CALIFORNIA, USA

The 2017/18 period was an unusual production year with heavy rainfall followed by a heat wave in July. The result was a lower pistachio yield, which was likely a culmination of unusual weather patterns and accumulated salinity damage during the 4-year drought we experienced from 2013 to 2016. During this prolonged drought, we had nearly zero available surface water and irrigation relied mostly on slightly saline groundwater.

In addition, climate change seemingly worsens problems with tree-nut pest insects in California, such as the navel orangeworm. Warmer winters coupled with earlier spring warming and warmer nights during the summer boosts reproduction of this pest, forcing more stringent pest control.

LITHUANIA

The 2017/18 season was plagued with constant heavy rain during the harvest in August and September. Our fields were severely waterlogged, which affected harvest, grain quality and also hindered our winter crop seeding.

Avoiding soil compaction is difficult under these conditions. The biggest challenge in the future will be to get these soils back in good condition.

LATVIA

In 2017/18 our farms were fortunately spared from the heavy rain that affected other parts of the country. However, wet weather hampered the seeding period following harvesting, making the planting difficult and delayed.

ROMANIA

The weather in our Romanian farms has alternated between contrasts. Dry and hot weather during July and August affected the 2017 season summer crops.

The following spring went from late frosts and low temperatures directly into a drought, then to periods of heavy rain over the summer months, then back to a severely dry autumn. These events reduced the yields, particularly in our horticulture, and have prevented the germination of our new winter crops.



CLIMATE CHANGE

The world's heating climate will perhaps become one of the most critical challenges for farmers.

Climate change influences Earth's temperature, precipitation, and hydrological cycles. This means we anticipate constant fluctuations in the frequency and intensity of rainfall, heat waves, and other extreme events, all of which will continue to impact agricultural production. These events can decrease plant productivity, resulting in price increases for many important agricultural crops.

We mitigate and adapt by improving our water and drainage infrastructure and develop more robust, diversified crop rotations.

It seems that climate change has moved the growing season 3-4 weeks forward, and so far has eliminated the former harsh Romanian winters.

To mitigate extreme rainfall events and avoid flooding, we are draining a 450-hectare highly fertile but low-lying area. We are also in the process of converting areas susceptible to erosion under row crops into permanent pastures for grass-fed beef production, and we are expanding our production of irrigated horticulture crops.

AUSTRALIA

Our farms in Australia were fortunately spared the severe drought that affected large part of the country in 2018. We did have a summer drought in Tasmania in February, where we had to utilise all the water collected in our reservoirs.

Generally, the country's odds of dry weather seem to grow with each year.

Managing Soil Erosion



Soil erosion by water accounts for the greatest loss of soil compared to other erosion processes e.g. wind erosion.

We have challenges with water-caused soil erosion on Ingleby's Latin American farms, particularly in Eastern Argentina (Entre Ríos province) and Western Uruguay (Soriano and Río Negro provinces).

In Entre Ríos, our farms are situated in the Humid Pampas ecoregion, between two rivers, the Paraná (West) and the Uruguay (East). Our farms in Soriano and Río Negro are on the opposite side of Río Uruguay, situated in the Uruguayan Savannah Pampas ecoregion, known for their vast fields of pampas grass. One of these approaches is no-till farming, which is commonly used in Argentina and Uruguay. But on Ingleby's farms, we have reinforced the no-till system by implementing contour terraces and grass waterways to effectively catch water, manage water runoff and reduce soil erosion.

The Pampas region appears flat but it has a gradual downward slope from northwest to southeast.

The soils of the Entre Ríos province are mainly vertisols, while we in Eastern Uruguay have mollisols. These soils have soil physical properties that demand careful soil management, especially in areas with high rainfall. A rapid saturation of the topsoil aggravates surface runoff and sediment loss.

Crop production involves soil disturbance to some extent. Therefore, we have to use practical farming approaches that support crop production while effectively protecting the soils. These projects started in 2011 for Argentina, with 3,071 hectares under terraces so far, and in 2014 for Uruguay, with 1,745 hectares. The contour terraces and the grass waterways are designed and built with the aid of GPS and Geographic Information Systems technology.

Simulations show that our farms can lose up to 50 tonnes of soil per hectare per year without grass waterways and contour terraces, as opposed to 7 tonnes using this system. Of course type and number of crops and cover crops also influence soil erosion.



CONTOUR TERRACES

Contour terraces are levelled areas constructed along the slope to catch water and reduce soil erosion.



GRASS WATERWAYS

Grass waterways are designed to collect and slow runoff water in order to channel it into a specific outlet.

The waterways are planted in grass that slows down the water run-off and absorb destructive energy that causes soil erosion and gully formations.

In Argentina, the water in these waterways is directed to the rivers, with a small percentage being stored in small reservoirs to be used for cattle and biodiversity.

In Uruguay, most of the water is stored in our lakes and reused for irrigation.

Ο

Humus, living creatures, inorganic minerals. This layer contains the most organic materials.

(A horizon)

TOPSOIL

SUBSOIL

This layer accumulates iron, aluminium and organic compounds, and clay leached down from A and E horizons.

(B horizon)

PARENT MATERIAL

Partly weathered rock that form the main ingredient of the soil.

(C horizon)

MOLLISOLS

In Uruguay, we have mollisol soils. These are soils that typically have a sandy loam A horizon overlying a clay loam or clay B horizon.



lacksquare

SOIL PROFILES // HORIZONS

SURFACE LITTER

Partly decomposed organic matter.

(O horizon)

ZONE OF LEACHING

Pale layer, mainly consisting of silicates, materials move downward. These are present only in older welldeveloped soils.

(E horizon)

BEDROCK

Bedrock at the base of the soil profile.

(R horizon)

VERTISOLS

In Argentina we have vertisol soils. These are soils that typically have a clay content of 30% or more in all horizons of the upper halfmetre of the soil profile.

When dry, the soils also have some cracks extending downward from the surface.

Resource Use

ENERGY USE

We monitor our energy use to help us progress into more efficient and environmentally sound systems of production.

In 2017/18 we used a total of 191,964 gigajoules (GJ) of energy. This amounts to 2.5 GJ/ha and means that we produce 1.2 tonnes of produce per GJ.

In terms of GJ of energy expended directly on our farms, the majority is in the form of diesel at 66% followed by electricity at 25%. Diesel use is traditionally high in cropping systems, but we aim to reduce this by reducing tillage, incorporating more pastures into rotations and upgrading old diesel-powered drying systems.

Our energy use efficiency has been decreasing by 3% per year on average due to major construction and development projects, increased irrigation and drainage activity as well as grain drying. Improvements in this field are a priority area for the future.

Where locally available and where it makes sense, we use renewable energy. Approximately 39% of our electricity comes from renewable sources. We have solar panels to power small water pumps, electric stock fences and some farm buildings.

Most of the electricity used in Tasmania and Uruguay comes from hydropower.

We have also completed a new solar panel field on our farm in California, capable of producing 2 million kWt of electricity per year.

FERTILISER USE

We efficiently use fertilisers in a balanced approach, adding no more or no less than what the plants need. This way, we reduce the potential for build-up of nitrates in the soil, eutrophication in the aqueous environment and volatilisation into nitrous oxide (N_2O) a powerful greenhouse gas.

Ingleby's inorganic fertiliser use has increased over time due to an increase of our total hectares, increasing yields, intensifications of some of our crop production systems and increases of our area of high-value crops. The increase is always balanced to the needs of the crops.

Our total fertiliser use is approximately 81 kg Nitrogen per production hectare. Our Nitrogen use efficiency reached 34 kg crop produced per kg Nitrogen used.

WATER USE

We irrigate 14% of our arable area, or 6,166 hectares. Irrigation stabilises and increases our yields, enables more crop rotations per year, builds resilience to climate change, and helps increase our fertiliser-use efficiency.

In 2017/18, we used 27,650 megalitres of water in our irrigated production. We irrigate crops in the US (pistachios), Tasmania (annual crops and dairy pasture), Argentina and Uruguay (annual crops), Peru and Romania (horticultural crops).

To produce 'more crop per drop', we "harvest" water in our landscapes and store it in dams to be used for our crops in times of need. We always make sure to avoid depleting natural water sources.



We are aware of the trade-offs irrigation creates between crop yields and water and energy use. This is why we invest in state-of-the-art irrigation systems that are highly efficient and help improve both water and electricity use efficiency.





Fencing & River Protection

Water is our most precious natural resource apart from soil. It irrigates our crops and pastures, provides fresh drinking water for livestock, and supports the most biodiverse habitats on our farms.

In New Zealand, we have an abundant amount of freshwater. However, unsustainable agricultural intensification over the last two decades has resulted in a decline in water quality as nutrient and sediment levels have increased in rivers, streams and lakes.

Ingleby is fencing off all major streams, rivers and lakes to prevent livestock from gaining access. This way, we avoid animal waste or streambank destabilisation that can contaminate the water. Instead we provide stock water by water-troughs.

We also create 10 metre riparian buffer strips along our major freshwater bodies. These are planted with a mix of locally-sourced native plants with a focus on flowering species. These riparian strips serve not only to maintain water quality, but also provide feed for bees and insects throughout the year.

Over the last five years at our farm Puketiti Station we have fenced-off 8 km of the Mangaorongo River and planted a riparian strip with over 20,000 native trees.

In the coming years, we will continue to fence-off and plant along all major freshwater bodies on all our New Zealand farms to prevent further erosion and safeguard water quality.

FLOOD DAMAGE

In June 2018, we received 250 mm of heavy rain on our farm Matahiia Station and the Mata River rose to its highest level in 10 years.

Our investment in fencing and riparian planting along the Mata River helped reduce the scale and severity of flood damage.







BUFFER STRIPS

One of the 15 Ingleby goals is to create 10 metre riparian buffer strips along all major streams, rivers and lakes.

Riparian strips prevent nutrient leaching and sediment loss – protecting and enhancing water quality, and farmland from erosion.



Utilising Natural Resources

In the last years, we have focused on how to better use the valuable natural resources present in our ecosystems in Peru. We are now using beneficial insects and nematodes, natural pesticides (biocides) and fertilisers, and looking into the use of symbiotic fungi to the advantage of our crops.

BENEFICIAL INSECTS

From its beginning in 2014, our beneficial insect programme in Peru has developed into a successful alternative to traditional insecticides.

We only use species found locally to prevent invasive species from entering our ecosystems.

Currently, the beneficial insects programme is focused on breeding green lacewing (*Chrysoperla sp.*). This insect helps us control five different insect pests in our avocado, table grape and blueberry crops. In avocados alone, we have reduced our synthetic insecticide applications for white fly from ten times to once a year.

The positive impact on the farms reflects on our financial sustainability too.

With these clear positive results, the challenge for the laboratory lies on increasing the rate of breeding and

the number of species, to widen the scope of our pest control.

NEMATODES

Our nematode production, which started in 2017, has also experienced an impressive development in the last year.

With over 25,000 species, nematodes are incredibly diverse. Our laboratory produces the nematode *Heterorhabditis bacteriophora*. These are very efficient control agents for several soil borne larvae attacking our blueberry and stevia crops.

Mainly aquatic, these nematodes travel to the soil through a solution released into our irrigation systems. Attracted to pheromones present in the larvae, they are quick and deadly predators capable of showing results in two to four days.

POLLINATORS

Pollination from bees or bumblebees is essential for many agricultural crops. Not only because it leads to seeds or fruit but it can also affect the quality of the produce. For example, a good pollination of avocados ensures bigger fruits with better post-harvest life.

This is why we want to increase the number of beehives on our farms in Peru. We aim to reach 1,500 hives in 2018/19.

As we add more honey bees to our farms, we are also aware that we need to protect our native bees and insect populations. We are therefore planting areas with native trees and flowers to provide a stable yearround source of bee feed.

With declining bee populations worldwide, it is more important than ever to protect not only the honey bees, but also our native pollinators.





BIOCIDES AND NATURAL FERTILISERS

We complement our beneficial insects programme with the use of biocides and natural fertilisers. Our inventory covers almost 50 natural products. For example, we effectively use garlic, soybean oil and cinnamon extract for insect control, while we use sulfur, capsicum and knotweed extracts as fungicides.

Native plant species are our best allies. From our valuable "Choloque" trees we produce an agricultural detergent for the control of spider mites based on the saponin active ingredient.

BIOLOGICAL CONTROL

The reliance on chemical control is not only costly, but also causes problems such as resistance build-up, damage to beneficial species and biodiversity in general, and it also leaves residues in our products.

Using natural fertilisers and biocides as well as releasing native predatory insects to manage pests eliminates the environmental and economic cost of chemical pesticides.

These practices also help us achieve our goal of producing high quality products with zero chemical residues.

Environment

Healthy natural environments support healthy farms.

Ecosystems provide, regulate and support ecosystem services on which agriculture depends. Interactions between biological communities and their physical environment build soils, cycle nutrients and water, sequester carbon, purify water and air, mitigate pests and pollinate crops.

Far from being conquerors of nature, we are stewards of the land - we want to farm with nature.

We protect **31%**, in Argentina.

or **30,893** hectares of our land as conservation easements or nature reserves. Included in these hectares are **17,275** hectares of natural grasslands in Uruguay and **1,511** hectares

So far, 2% of our total land area is in water bodies.

To date, we have planted more than **1.2** million trees on our farms to enhance biodiversity, prevent erosion and provide feed for bees.

Our Environment

NATURAL HABITATS

As managers of large tracts of land, lack of biodiversity and natural habitats is a risk because of their benefits to production. Our goal is that by 2019, 10% of each of our farms' total area is in natural habitats.

We currently protect 31%, or 30,893 hectares of our land as conservation easements or nature reserves. Some of this cannot be farmed: geological formations, steep slopes and gullies. But most, we deliberately protect from farming: wetlands, river fronts and lake sides, wild grasslands, wildwoods and native bush.

Included in the environmental hectares are 17,275 hectares of natural grasslands in Uruguay and 1,511 hectares in Argentina. We protect these from applied lime, pesticides or fertilisers, and we do not plant pasture species or plough. Cattle grazing the land are an integral part of its conservation.

We constantly work to identify land that is unsuitable for production and can be returned to natural habitats.

BIRD MONITORING

We monitor birds on our farms. Changes in bird populations can be a useful indicator of our farms as a habitat, but also of broader environmental change.



TREES, SCRUBS AND BUSHES

So far we have planted more than 1.2 million trees on our farms. We plant a diverse range of flowering species so that pollinators have a continuous supply of feed for throughout the year, increasing survival rates and the services that pollinators provide. We use locally-sourced native species to ensure we maintain the correct genes in the gene-pool.

Increasingly, we try to rely on natural revegetation and leave the planting to nature's own course. Sometimes it takes longer, but the result is often better.

FRESHWATER BODIES

Freshwater bodies and their surroundings are the most biodiverse habitats on our farms. One of our 15 Ingleby goals is to have 1% of each farm's land area as water bodies by 2019.

We protect our freshwater bodies from fertilisers, chemicals, sediment and animal waste by establishing 10 metre unfarmed buffer strips next to all major water bodies

So far. 2% of our total land area is in water bodies. defined as rivers, streams, springs, ponds, artificial canals and ditches as well as artificial water reservoirs. We have thus reached our goal of 1% land areas as water bodies at the global level, but not at farm level. We are continually assessing our farms for suitable locations for more water bodies.







Farming with Nature

We have always encouraged wildlife presence on our farms, protected remnant habitats and significant species, and restored degraded land. To us, working with nature is the greatest benefit of being farmers.

Agriculture accounts for 34% of the global land area, some 5.1 billion hectares of land dedicated to livestock grazing, row cropping, and horticulture. Biodiversity and ecosystem services such as primary production, soil formation, nutrient cycling and water purification underpin the entire global agriculture system and its complex web of supply chains.

As farmers, we rely on healthy natural ecosystems to support healthy, productive farms. To ensure that the actions we take to increase biodiversity and restore ecosystems on our farms are of mutual benefit to the farming operation, we have in 2018 initiated the project "Farming with Nature". Farming with Nature aims to balance conservation and production, encouraging natural regeneration and small changes to the landscape that increase the quality and health of the local ecosystem without affecting productivity.

We want our farms to be part of the larger landscape, and ensure connectivity between landscape elements. All with minimal human interference so that nature may take its own course.

It is a long-term project that uses landscape tools such as beetle banks, water body creation, uncultivated buffers, solitary trees etc. to increase the area,

M. X

diversity and quality of natural/semi-natural habitats on our farms. This helps ensure successful feeding and breeding of a diverse biodiversity – building healthy populations, and enhancing ecosystem functionality.

Farming with Nature has been refined on our farms in Latvia and Lithuania. Here, we have created uncultivated buffers around all water bodies, woodlands, rivers and ditches and increased the area of seminatural grassland for wildlife.

We have also identified ten significant environmental, cultural and recreational sites totalling 265 hectares. For each of these sites, we have created a detailed



management plan and placed them under an internal covenant that protects them in perpetuity.

Farming with Nature has nearly concluded in Latvia and Lithuania and will be rolled-out globally in due course. We are constantly assessing each of our farms for ways to further enhance the natural environment and improve biodiversity.

Protection Areas

Protecting and enhancing biodiversity on-farm provides benefits to production, builds resilience to climate change, and ensures sustainable use of natural resources and land.

In Ingleby, we have both formally protected areas, which are those with a land title covenant, and placed other areas under our own special Ingleby protection.

PERU

In Peru, we internally protect a 40 hectare area of tropical dry forest containing near threatened Algarrobo trees (Prosopis alba).

These dry forests are also the main habitat for the two endangered bird species: Peruvian Plantcutter (*Phytotoma raimondii*) and Rufous Flycatcher (Myiarchus semirufus).





ROMANIA

In Romania, we protect 427 hectares of forest under the NATURA 2000 scheme, where logging is permitted at a reduced cut with special precautions to protect flora and fauna.

We internally protect another 226 hectares of forest to create a safe haven for wildlife such as bears, wolves and lynxs. A further 2,831 hectares are a designated "silent area" where hunting is prohibited.

TASMANIA, AUSTRALIA

In Tasmania, we protect 21 hectares under the Nature Conservation Act 2002, primarily to protect the endangered Shiny Grasstree (Xanthorrhoea bracteata).

We have also placed a land title covenant on 40 hectares of endangered natural coastal vegetation.



NEW ZEALAND

In New Zealand, we legally protect 885 hectares of temperate, virgin native bush under an Open Space Covenant with the Queen Elizabeth II Trust (QEII). QEII covenants protect areas in perpetuity.





VICTORIA, AUSTRALIA

In Victoria, we internally protect 40 hectares of fossilised lava rivers which extend across our farm.

These basalt stony barriers and the immediate surrounding grassland are a key habitat for the endangered Corangamite Water Skink (*Eulamprus tympanum marnieae*), Golden Sun Moth (*Synemon* plana) and an endangered vegetation community, Native Temperate Grasslands of the Victorian Volcanic Plains.



Protected Forests

Ingleby owns three forests in Romania; ledera, Topoloveni and Siriu, totalling 7,261 hectares. We sustainably manage these natural, mixed-species forests in accordance with the highest professional and environmental standards.

High in the Carpathian Mountains, you find Ingleby's Siriu forest which totals 1,356 hectares.

Due to the altitude (800 m to 1,400 m), Siriu forest contains mixed stands of European beech (Fagus sylvatica) and silver fir (Abies alba), mixed with lower volumes of various hardwood species (sycamore, willow, poplar, birch and rowan), and planted stands of Norway spruce (Picea abies).

Siriu forest does not have any priority habitats, meaning the forest is not immediately threatened. However, Siriu provides an important function in that it connects forest lower in the Buzau valley to a Natura2000 area that contains virgin old-growth forest, alpine pasture, herb fields and scrubland.

The Siriu forest contains 427 hectares of land within the adjoining Natura2000 area (ROSCI 0229 SIRIU). Here we have adopted a special management plan that respects the Natura2000 ecological and social objectives.

We protect an additional 226 hectares of Siriu forest, combining it with a 58 hectare Natura2000 area. The combined 284 hectares are located at the top of Siriu forest and the upper tributary of the Siriu Mare River. It is steep in places, representing a difficult harvest setting and erosion risk.

Low harvest volumes in these stands and the need for construction of long roads to extract the timber means that the area is of low economical value

What is valuable in this forest is the abundant wildlife and the opportunity to create a safe haven for nature. It is for this reason that we have decided to remove this area of forest from production and create a nature reserve.

Ingleby is currently conducting a biodiversity inventory in this new reserve.

To ensure that sensitive plant and animal life of a region is not disturbed, we have established

ditches on access tracks to this area of forest as increased motor bike traffic is becoming a significant issue. The ditches are already proving effective barriers.

We continue to assess our forests on a regular basis and retire areas that do not make sense to harvest, such as small stands, broken terrain, proximity to water bodies and weak geology. Such areas often yield low returns, and the ecosystem services gained from these areas, such as erosion control, water protection and habitat preservation are more valuable to us than the timber extracted.

INGLEBY'S FOREST MANAGEMENT PRACTICES

Our forest management practices promote valuable genotypes, support ecosystems and biodiversity through progressive cuttings and natural regeneration, which maintain a favourable balance between young and mature forest.

Ingleby forests are structurally heterogeneous, offering diverse ecological niches characteristic of natural forests.

Maintaining the current ratio of young and mature forest and the structural diversity of forest habitats strengthens the stability, vitality and resilience of the forests to climate change.



MAMMALS

- > Grey Wolf (Canis lupus)
- > Brown Bear (Ursus arctos)
- > Eurasian lynx (Lynx lynx)



AMPHIBIANS

- Yellow-bellied toad (Bombina variegata)
- > Northern crested newt (Triturus cristatus)

BIRDS

- > Black Woodpecker (Dryocopus martius)
- > Collared Flycatcher (Ficedula albicollis)
- (Ficedula parva)



INGLEBY FARMS & FORESTS



SIRIU FORESTS // NOTABLE SPECIES PRESENT





> Mediterranean barbel (Barbus meridionalis)

> European Bullhead (Cottus gobio)







> White-backed Woodpecker (Dendrocopos leucotos)

> Red-breasted Flycatcher



Livestock Farming on Natural Grasslands

Livestock farming is often associated with high resource intensity, a high carbon footprint and a negative impact on biodiversity.

However, it is important to keep in mind that livestock farming covers a vast variety of different management systems. With proper management, livestock farming can be an effective tool in nature conservation while serving as a carbon sink.

By extensive grazing management of our natural grassland areas, we are promoting both production and the environment, two of the three pillars of sustainability.

Ingleby's farms in Uruguay sit on the Uruguayan savanna, an ecoregion within the South American Pampas, which is one of the world's most important grassland biomes.

The pristine natural grasslands are a refuge for indigenous flora and fauna, but due to expansion and intensification of agriculture, the grasslands are diminishing.

Ingleby is strongly committed to the protection and preservation of these natural grasslands, conservation is therefore deeply integrated in our livestock production.



Three of our seven farms in Uruguay are now certified members of the Pasture Alliance. This is an international collaboration between various stakeholders aimed at conserving the Pampas and its biodiversity.

Having the farmers', environment's, and biodiversity's interests in mind, the Pasture Alliance promotes extensive grazing of natural grasslands.

This management system is far from producing the same quantities of beef as conventional intensively managed pastures or feedlots, but the environmental and conservational benefits are so strong that we have committed to go this way.

EXTENSIVE GRAZING

Extensively grazed pastures accumulate organic matter and, as a result, serve as carbon sinks rather than carbon sources.

Keeping stock numbers low and allowing the vegetation to recover naturally, prevents overgrazing and exposure of the soil, which in turn prevents leaching of nutrients and erosion.

Not introducing any exotic forage species benefits indigenous invertebrates, birds and mammals specially adapted to the original vegetation.

Natural Pest Management

Ingleby is always looking for innovative ways of dealing with pests, engaging the local community and promoting wildlife. In California, we have managed to combine all three into one single programme.

On our pistachio farm, Burrel Ranch, in California, we have long had a pest problem with rodents, especially in newly planted compartments.

Rodents, and especially pocket gophers (*Thomomys* bottae), eat the tree roots, severely damaging or killing the trees. If left unchecked, large populations of gophers can cause major damage to a plantation.

Furthermore, rodents attract coyotes, whose young chew up our irrigation drip lines as they are teething.

To resolve this issue we have implemented an integrated pest management strategy, focusing on improving the living conditions for natural predators feeding on rodents, primarily predatory birds.

We have put up nest boxes for barn owl (Tyto alba) as well as raptor perches for birds of prey to rest and scout for prey from.

We continuously band and monitor the barn owls and since we introduced the nesting boxes, we have increased the number of banded birds from 44 in 2003 to 224 in 2017. At the same time, we have dramatically reduced our use of rodenticides.

Assisting with banding and monitoring is the Fresno Wildlife Rehabilitation Service, a volunteer-based organisation dedicated to reintroducing injured and orphaned animals into the wild. All our data is submitted to the U.S. Fish and Wildlife Service.



This way, the students get hands-on experience working with wildlife and in return, we get to see their scientific results.



BENEFITS OF NATURAL PEST MANAGEMENT

ENGAGING OUR LOCAL COMMUNITY

To engage our local community in wildlife management as well as farming, we work with the Center for Advanced Research and Technology High School in Clovis, California.

Each year, 6-7 students come out to our farm during our nest box inspections that takes place twice a year.

Initially, the students prepare a hypothesis, which forms the basis of their thesis. As part of their curriculum, their thesis, along with their findings, is presented at the end of the semester.

Labour, Gender & Human Rights

We are a family farming company and encourage families to live on our farms.

We have a diverse range of female and male employees, who never compromise on health and safety, and who thrive on challenges and responsibilities.

To promote a good work environment for our teams, we support internationally recognised labour standards, human rights, and offer continuous training and development. As of 30 June 2018, we have **3,027** employees worldwide of more than **16** different nationalities.

89% are employed in horticulture, our most labour intensive production systems.

Women make up **33%** of our total employees, **19%** of our senior management team and **25%** of our Board of Directors.

Our Teams

LABOUR AND HUMAN RIGHTS

We support and respect internationally recognised labour standards and human rights.

We fulfil our legal obligations and offer reasonable terms on pay, pension, sick leave, holidays and notice periods.

We do not use any form of forced or compulsory labour, and we do not use child labour.

We uphold the freedom of association and the effective recognition of the right to collective bargaining.

GENDER

In many countries, farming is a male dominated profession. However, we are equal opportunity employers, and we want to create equal and fair working atmospheres welcome to all.

We oppose all forms of discrimination, and recruit employees regardless of race, gender, nationality, religion, sexual orientation or other personal diversity indicators. We currently employ people of more than 16 different nationalities. We monitor the gender ratio of our teams. Our target is for the underrepresented gender to reach at least 40% by 2025. Women are currently the underrepresented gender, making up 33% of our total employees.

For the senior management, it is our goal to always achieve gender diversity. In 2017/18, women represented 19% of our senior management. Through recruitment and career development, we focus on attracting and retaining female employees and executives, who want a career in farming or forestry.

For our Board of Directors, we have a target for the underrepresented gender to reach at least 40%. Currently, women make up 25% of our Board of Directors. We are therefore always considering both female and male candidates when there are open positions on our Board. In 2017/18, there have been no open positions.

TRAINING

We want to have skilled and motivated farm teams.

We encourage our teams to acquire new skills. We monitor how much training our employees receive. Our goal is to have 2% of the annual working hours spent on training each year. Our full-time employees currently spend 1.5% of their work hours on training.

To ensure a robust pipeline of talent for management positions, we offer training to both female and male employees and we encourage and support women to increase their qualifications and apply for management jobs.









Safety Colleague

In farming, each day brings new challenges, and we want everyone to come home safe after work. Therefore, maintaining safety on our farms is our first priority. Being always aware of the risks is the best tool to prevent potential accidents. For this reason, we implemented the concept "Safety Colleague" on all Ingleby farms worldwide in December 2017.

SAFETY COLLEAGUE CONCEPT

AUSTRALIA

The aim of the Safety Colleague is to talk and remind each other about safety to avoid that accidents happen.

Everyone with practical work on an Ingleby farm is appointed a Safety Colleague to discuss safety with every morning before work.

The diversity of our farms makes the safety challenges different on each location. In this way, the Safety Colleague has proven to be a very versatile initiative that has adapted to the local needs and activities of our teams worldwide. On our dairy farm in Tasmania, the team works in shifts, and the people on each shift are not always the same. Handling dairy cows and calves can also be challenging, as they are large, heavy animals and can be unpredictable at times. This entails risks for our employees, but also for the well-being of our animals.

The main challenge is to avoid complacency in our routines. Here, the Safety Colleague initiative, which is locally referred to as the Safety Buddy, has evolved into a common safety conversation at the beginning of each shift. This has proven to be an efficient way to make safety the underlying narrative on the day to day.

ROMANIA

Managing forests requires a wide range of safety skills, and it deals with risks that are differentiated from farming.

In the forests, our teams need to:

- Ensure all workers in the forests use the mandatory safety equipment
- Constantly pay attention to the surroundings and the terrain
- Handle logistics around thinnings as well as logging of large trees
- > Handle possible encounters with wildlife such as bears, wolves and boars
- Provide safety training to external chainsaw workers that harvest trees on behalf of our buyers

Because working in the forests rarely allows face to face meetings, the Safety Colleague discussions happen through the phone. A few minutes of discussion every morning has brought more attention to own and others' actions.





Our teams also work closely with forest workers from buyer companies, and therefore the positive effects of the Safety Colleague also extend to them. We were already providing safety gear and training to our buyers, but the exchange of information has increased significantly after implementing the Safety Colleague.

BALTICS

Our teams in the Baltics have come a long way in terms of safety. There are now clear guidelines on safety and a focus on prevention of accidents. This has been a product of many different initiatives from internal trainings and lectures from experts, to sharing personal stories. Here, the Safety Colleague initiative has evolved into a holistic approach to everyday communication.

Daily team talks include the topic of safety, and we have succeeded in making sure every team member cares about each other and reminds their colleagues of the safety measures to take each day.

SAFETY IN INGLEBY

Our overall goal in Ingleby is a zero-harm work culture.

Realistically, we know that this is difficult to achieve. Farming is a hazardous profession. Our farm teams work with large machinery, vehicles, chemicals and livestock. They are exposed to bad weather, noise and dust.

Providing safe work environments for our teams is one of our most important responsibilities.

In 2017/18, we increased our focus on health and safety at all levels in the organisation and implemented the "Safety Colleague" concept. We reduced the total number of accidents worldwide by 21% and near misses by 50% compared to 2016/17.

But even one accident is one too many, and we will continue focusing on health and safety in 2018/19.

Ingleby Scholarships

Ingleby seeks to encourage and support young women and men, who are keen to develop their careers within agriculture. We therefore support several agricultural education scholarships.

It is our hope that recipients of Ingleby scholarships, after gaining knowledge and experience from their studies, will establish strong careers in their country of origin and become leaders in their chosen agricultural field.

AUSTRALIA

Since 2011, Ingleby has supported the Ingleby Farm Management scholarship at Marcus Oldham College in Geelong, Victoria, Australia.

Marcus Oldham receives no Government funding and is the only Independent Tertiary Institution offering full time agricultural studies in Australia.

The scholarship is available each year to an Australian resident, a student that is looking to make a future in Australian agriculture at the production or farm management level.

The Ingleby scholarship is recommended to students by a university professor committee.

All applicants have to answer the entry essay question: "Ingleby has a vision where they believe good farming can both feed the world and protect the environment. Do you think this is possible in today's world?"

During the student's practical year (second year), Ingleby offers the opportunity to work and develop agricultural skills within its farms. Through this experience, the students gain important skills to deal with factors facing agribusiness into the future, and are ensured that they will be at the forefront of a sustainable agricultural production industry.

Since 2011, eight Marcus Oldham College students have been awarded the Ingleby Farm Management scholarship.



EUROPE

Each year, Ingleby Europe awards a scholarship in recognition of former Ingleby Chairman Carl-Gustaf Wachtmeister, to encourage and support young women and men from Romania, Latvia and Lithuania who are keen to develop their careers within agriculture. The scholarship commenced in 2017, and can be awarded to external agricultural students and Ingleby's own employees, who show great promise and dedication to sustainable farming.

In the last two years, four Ingleby employees have been awarded the Ingleby Europe scholarship.

The scholarship allowed them to travel to other Ingleby farms in the world, learning new production methods and establishing a worldwide agricultural network.

NEW ZEALAND

In New Zealand, Ingleby supports two tertiary education scholarships, one at Massey University and one at Lincoln University.

The students are trained to become world-leading agricultural specialists, learning about plant science, animal science, soil science and farm management. In addition, provided with the required tools, in order to find the right balance between agricultural production and long-term environmental sustainability.

Ingleby also supports The Waipaoa Farm Cadet Training Trust. This has been an outstanding success and two past recipients have applied for jobs within Ingleby.







USA

Ingleby's Burrel Ranch in California surrounds a school that enlists approximately one hundred students, aged five to fourteen.

Many of these children, particularly the boys, are pressured to leave school after 12th grade to start working on farms.

In order to encourage these children to continue their education, Ingleby set up an annual scholarship that has been running for over 15 years.

At an early age, the children are informed about the scholarship's existence as well as the criteria to become a recipient. This criteria consists of a good behaviour record, a written short paper and a panel interview.

The winner is announced at Burrel School's 8th graduation and receives support for a tuition and education over four years.

The scholarship is extended to other local schools as well.

Open Farms

Our long-term commitment to farming also involves having a good, open and honest relationship with our local communities.

Taking care of our soils is important, but so is inspiring the next generation of farmers. That is why all around the world, we open our farms to schools and our people from our local communities.

We teach our visitors where their food comes from, and we also hope to fill their young minds with the wonders of germination, the thrill of climbing up to a tractor, and the smell of healthy soils.

ROMANIA

In Romania, we have held open-farm days each year over the past four years, where we welcome local schools, neighbours and our employees and their families to visit our Green Gate farm.

We are the only farm in the area doing this, and we have built a good collaboration with the local schools.

The response has been so positive that we are now expanding the initiative to the rest of our farms in Romania.

BALTICS

We have open doors days in Latvia and Lithuania each year, welcoming neighbours, local business partners and schools.

Our Pagiriai farm in Lithuania also collaborates with the local school of Šėta. This year, a group of fifth graders toured the farm to learn about the crops and the concept of sustainable farming.

Children learn better through practical experience, so we try to coordinate the content of their visits with their teachers to fit their syllabus at school. During their visits they learn about biology, but they can see, smell and touch the plants at the same time.

Always surprised about the many skills and knowledge a farmer needs to have, these visits certainly help to pique their curiosity.

We hope we will soon be able to replicate these visits in Latvia.







TASMANIA, AUSTRALIA

Clovelly Dairy, in Tasmania opens its doors to the community during the calving season. Although it is a very busy period, it is also a great opportunity to show our neighbours what we do and how we care for the animals.

School children of different ages learn about how milk is produced, and get to experience the animals. Everybody loves watching the calves in the paddocks and some even get to see the feeding.

Children often ask if they can help with the cows, and we hold simplified sessions were children over 14 years old can participate. For those over 16, there are also apprenticeships. These visits even get the parents interested!

Engaging in Our Local Communities

We employ most of our team members from our local communities, and how we manage our lands and act socially have a high local impact.

In Ingleby we actively engage in our local communities, and reach out to our neighbours. Local community interests are our interests, and naturally, this is where our focus lies when we choose which organisations and activities to support.

On our "open farm days", we encourage our employees and neighbours to bring their families and friends so we can show them what we do and how we farm.

We also engage actively in local activities, organisations and schools. No cause is too small or too big. We have donated a single used computer to Marinas School in Argentina, US\$ 15,000 to the Trees for Bees project in New Zealand and provided sheep for shearing training in Australia.

Wherever possible, we support local schools. We provide school children with school bags and stationery. We assist in making school playgrounds, plant trees in school yards, and help rebuild old school buildings.

We have provided posters of native birds to local schools in Argentina, Uruguay and Peru to raise awareness and create school discussions on local wildlife. In Romania, we also facilitate discussions and action groups on recycling and why and how to keep local areas clean.

In Tasmania, we provide tree-planting jobs to disabled young people – with and through their supervisors – for the mutual benefit of our treeplanting programme as well as the young people who get experience in a meaningful job.



LOCAL FARMERS

We are locals, and we do our best to be trustworthy, honest and hardworking neighbours.

Where we can, we take part in our local communities, and provide good jobs.

In particular, we want to interact with the young generation – the future decision makers – and make them interested in farming and environmental protection.

Anti-Corruption

Ingleby operates in many countries, of which some are perceived to have a medium to high risk of corruption.

We are strongly committed to conducting our business in an honest and ethical manner. We work against corruption in all its forms, including extortion and bribery.

We abide by our Ethical Policy, Anti-Money Laundering & Anti-Corruption Policy and Supplier's Code of Conduct. Together, these constitute our Code of Business Conduct.

We require our employees and business partners to comply with the expectations and policies of the Ingleby Code of Business Conduct.

We encourage our employees and business partners to report any violations or suspected breaches of our Code of Business Conduct. This is supported by our whistleblower system allowing for full anonymity.

We operate with **zero** tolerance towards breaches of our Code of Business Conduct.

In 2017/18, we had 1 whistleblowing case and **1** fraud incident.

We investigate **all** suspected breaches thoroughly, take appropriate actions and report **any** breaches to our Board of Directors. We ensure there is **no** retaliation against people who report alleged breaches of our Code of Business Conduct.

Board of Directors

ROBERT T. WISEMAN

Non-Executive Director Robert T. Wiseman built Robert Wiseman Dairies (now Müller-Wiseman Dairies) to become Britains largest fresh milk company.

GWYN V. BURR

Non-Executive Director Gwyn has more than 25 years of experience from the retail sector in companies such as Nestlé, ASDA and Sainsbury's.

WILLIAM H. CAMP Vice-Chairman

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Bill worked for 22 years at ADM before retiring in 2007. ADM is a US global food processing and commodities company.

LISBET RAUSING

Non-Executive Director Co-founder of Arcadia. Lisbet founded, and

remains a director of,

Ingleby.

DAVID BLANCHARD Non-Executive Director

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TRUELS DAMSGAARD

David has worked in different positions at Unilever since 1986. In 2014, he was appointed Chief R&D Officer.

Chairman

Truels is CEO of DLF. DLF is the world's leading producer of clover and grass seed, with a global market share of 25%.

We are proud of our farms, and we look forward to working together in the long term as we strive for farming and forestry excellence.

HANS HENRIK KOEFOED Chief Executive Officer

Hans Henrik has an extensive background in farming and farm management. He has been the CEO of Ingleby since 2005.

JOHANNES BURGER Non-Executive Director

Johannes is a laywer and partner at Marxer & Partner based in Liechtenstein.





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