SEPWA

SETTLING THE DUST

LESSONS LEARNT FROM THE 2015 ESPERANCE FIRES

COVER PHOTOS

1. Brendan (Shorty) Morcombe, Scaddan, December 2015 checking germination of his cover crop of barley.
2. Soil testing burnt paddocks at Scaddan in March 2016.
3. A ball of fencing wire rolled up by BlazeAid at David and Katherine Vandenberghe's Riverland farms, Scaddan.

"EVERY GREAT TRAGEDY FORMS A FERTILE SOIL IN WHICH
A GREAT RECOVERY CAN TAKE ROOT AND BLOSSOM ...
BUT ONLY IF YOU PLANT THE SEEDS."
STEVE MARABOLI
(BEST - SELLING AUTHOR, AND BEHAVIOURAL SCIENTIST)

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This book would not have been possible without the financial support of the Grains Research and Development Corporation (GRDC). In the weeks following the fires, the South East Premium Wheat Growers' Association (SEPWA) was contacted by many individuals and industry groups offering support. GRDC was one of those groups and it was decided by the SEPWA Executive Committee and staff that a book was needed to document what was done for the benefit of others in the future.

1. Gardening Australia's Josh Byrne admiring the vegie patch at Scaddan Primary School with students five months after the fire went over the school. (March 2016)

In the days following the 17 November 2015 fires, there were many offers of support from South East Premium Wheat Growers' Association (SEPWA) sponsors and the broader industry.

Generous donations from Interflour, the Australian Wheat Board, Plum Grove, the Grains Industry Association of Western Australia (GIWA) and Yuna Farm Improvement Group totalling almost $20,000 went towards a number of community events.

With these funds, SEPWA instigated mental health awareness sessions with agribusiness a few weeks after the fires. Then a series of Maggie Dent workshops (Navigating Life's Challenges) were held at Esperance and Grass Patch in January 2016, followed by a wonderful 'Secret Men's Business' evening in Scaddan with Regional Men's Health which resulted in almost 100 men congregating in Wattle Dale Stud's shearing shed for a barbeque dinner early in March.

Australian football icon, Kevin Sheedy, spoke at a pre-season breakfast at Gibson Football Club in mid-March about finding motivation.

Then in late March, Gardening Australia's Josh Byrne visited Scaddan to support and inspire the community and in particular their school in the town's recovery journey. Josh was born and spent part of his childhood in Esperance and he revelled in the chance to lend his gardening and design skills.

SEPWA is grateful for the donations from these businesses, which were a great means of on-going support for those affected by the November fires in the first 12 months.

The Regional Men's Health network has continued to provide support to those deeply affected and the Esperance Shire Council and Volunteer Bush Fire Brigade have also been instrumental in aiding the recovery process.

BlazeAid volunteers were heralded saints by those they helped by dismantling burnt infrastructure and in many cases, also lending a friendly ear or shoulder to cry on.

Red Cross was also invaluable in the direction and resources they provided during the emergency response phase and the ensuing recovery phase, which is still on-going.

GRDC also offered to support the community and the SEPWA Executive suggested a case study booklet which would follow some of the farmers through their recovery processes.

The SEPWA Executive Committee and staff hope this publication will be an excellent reference point for other Australian farmers affected by fire in the future and will also be another tool in our communities' journey of recovery.

From the day after the fires, the farmers affected were quick to work with groups such as SEPWA for the good of others in the community. We acknowledge the many farmers who contributed to this book and to the recovery process.

In particular, we thank Dave and Linda Campbell, Shorty and Rhonda Morcombe, Nigel and Lynne Norwood, Theo and Sheila Oorschot, Wags Siemer, David and Katherine Vandenberghe, and Jason and Tara Vermeersch and family.

Agribusiness professionals were also quick to lend support, in particular: Luke Marquis (South East Agronomy Services); Monica Field (Farm and General); Phil Smyth (Landmark); Ben Curtis and Mae Connelly (Farmanco); Theo Oorschot (Esperance Rural Supplies); and David Hall (DAFWA).

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IN MEMORY

This book is in memory of Kym 'Freddy' Curnow, Tom Butcher, Julia Kohrs-Lichte and Anna Sushchova-Winther.

INTRODUCTION

When Esperance farmers, mid-way through one of their best harvests on record, were devastated by a series of fires in November 2015, it soon became apparent that there's a lot you don't know when met with such disaster.

A dry lightning storm moved across the Shire of Esperance on Sunday 15 November 2015, resulting in several reported fires.

Four fires were reported around Lake Mends, within Unallocated Crown Land (UCL) approximately 40 kilometres north of Cascade. These fires merged into one fire over the following 24 hours.

Additionally, a lighting strike started a fire at Doombup Lake, along Merivale Road about 20 kilometres east of Esperance.

A further three fires began in the eastern parts of the Shire of Esperance within the Department of Parks and Wildlife estate.

The Cascade fire burnt an area of about 133,000ha resulting in the four fatalities, stock and crop losses, house, shed and machinery losses and damage. The Merivale fire burnt around 18,000ha resulting in a small amount of stock losses and damage to several properties in the area.

The fires to the east in Department of Parks and Wildlife estate burnt about 100,000ha resulting in significant damage to the natural environment including flora and fauna.

The fires smouldered and flared up again for almost a week after that fateful Tuesday when temperatures soared to over 42 degrees Centigrade and wind speeds consistently hit between 60 and 100 kilometres per hour for more than six hours straight. The Cascade fire was the hottest grassland fire in WA and possibly Australia ever recorded.

By the end of that exhausting and frustrating week of fighting the three fires, the community was spent both physically and emotionally. Fortunately most property owners miraculously still had their homes to return to, but infrastructure for many was gone.

One year on and the communities of Scaddan, Cascade, Grass Patch, Merivale, Condingup and Esperance are rebuilding. Individuals have found their recoveries varied – depending on their own unique circumstances.

The loss of Kym (Freddy) Curnow, aged 45, who was killed not far from his beloved Scaddan farm trying to save people from the fire, along with three others who were trying to flee from a neighbouring farm, was the hardest to comprehend. The three were working on Linda and David Campbell's Scaddan property and had come to Australia to live their dreams: Norwegian national Anna Sashchova-Winther, 29, British man Thomas Leslie Butcher, 31, and German woman Julia Kohrs-Lichte, 19.

Community and family support and emotional well-being of those affected became the primary concern in the weeks and months that followed. One year on and people are still struggling with the aftermath, but getting on with their lives. A mild wet summer and good growing season for most in 2016 also helped farmers who had struggled to stabilise bare soils.

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The Esperance Shire Council provided strong leadership and support in the recovery process. In particular, Shire President Victoria Brown, only months into the job, showed true leadership, compassion, intelligence and at times provided some much needed humour for the community.

Volunteer fire brigades, both local and from outside the district were and still are playing a vital role in the rehabilitation of the communities affected.

This book is about documenting the various recovery processes experienced from a farm management perspective for the benefit of managers in the future who unfortunately will be met with similar dilemmas as our resilient community was.

One thing is for sure: life goes on, the landscape will regenerate, the soil will grow life again, and a different normal will return.

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1. Fire brigades' early morning meeting at Scaddan before another day of fighting fires. (week of 17 November 2015)
2. Prime Minister Malcolm Turnbull met with fire fighters and the Esperance Shire prior to a community function in Esperance after the fires.
3. Darren Curnow and Mic Curnow, older brothers of late Scaddan farmer Kym (Freddy) Curnow who died in November during the Scaddan fires. The brothers are pictured in burnt-out trees at Scaddan. Picture taken by Danella Bevis in January 2016. Courtesy of West Australian Newspapers.
4. Memorials in honour of the four lives lost on Griggs Road. This one is for Kym (Freddy) Curnow.

FOREWORD

If you are reading this, it could be that you have recently been affected by fire and are looking for treatments or answers to your questions about how to handle burnt farmland. I sincerely hope if this is the case, that the fires haven't had a tragic outcome for human life or major infrastructure, as most other things will heal relatively quickly.

Tuesday 17 November 2015 is a date that will be forever etched in the minds of most in the Esperance community, but in particular for our family and those who knew the victims of the fire that afternoon.

It is an understatement to say that the 12 months following that day have been the hardest of my life dealing with the loss of a close uncle, as well as still trying to run a business and rebuild a burnt property. Whilst there will be forever something missing from our lives, we have continued on and the farms have recovered quite well after a great start to the season in 2016. Apart from the sight of burnt trees it is hard to believe it's the same farms.

One thing I can say in hindsight though is it is almost certainly not as bad as it looks (as long as you are adequately insured) and it is amazing how fast farming land will recover. Probably the best piece of advice I can give is make sure you spend plenty of time with family and friends after suffering such an ordeal. And if you need to do the work that must happen for your business to continue, make sure you still spend plenty of time off the property doing something you enjoy. There is nothing more heartbreaking than seeing farmland blow and is certainly not great for your mental health.

Hopefully you find the information in this book useful and relevant for your situation. Many thanks to GRDC for their support.

RIP Fred, Tom, Anna and Julia.

Greg Currow

SEPWA PRESIDENT, JANUARY 2017

EMOTIONAL RECOVERY

After the Esperance fires, many people expressed feeling overwhelmed, sad and despondent. They found comfort in coming together as family and community.

Red Cross (www.redcross.org.au) has a number of resources to provide support during times of crisis. Looking after Yourself and Your Family after a Disaster is an excellent publication.

What you may feel after a fire

Bushfires have a profound impact on the local community, not only for those directly affected but also those who have watched the media coverage or know people who have suffered. This will also include those who have been involved in supporting the community either in a volunteer or professional capacity.

It is normal to experience a range of mixed emotions after a disaster such as a bushfire.

Some common reactions include:

- Feelings of fear, anger or sadness
- Feeling agitated or restless, unable to settle
- Feeling overwhelmed
- Feeling detached or withdrawn from people around you
- Difficulty sleeping or resting
- Difficulty concentrating or feeling motivated
- Constant tearfulness or questioning "What if I had done X or Y instead"
- Recurring distressing thoughts and images of the event
- Physical and emotional exhaustion often intensifies the feeling of "not coping"
- Behaving unlike yourself.

These reactions are to be expected, and although feel intense and sometimes frightening, they are worse in the first weeks and usually reduce over time as personal resilience and community support begins to grow.

What helps?

- Getting back into routine: familiar patterns of meal-times, sleep and rest, school etc.
- Breaking down tasks into small steps and working through them one at a time.
- Spending time with family and friends: those who seek support, involve themselves in their communities and keep connected with people recover more effectively.
- Engaging with activities you usually enjoy, even if at the moment you don't feel motivated.
- Balancing the amount of media you watch, listen or read. While accessing up-to-date information is important, watching, listening or reading too often can reinforce your distress.
- Others may encourage you to talk about what happened and how you feel. It is important that you only talk about what you want to, when you are ready, with either someone you trust or a health professional such as your GP or counsellor.
- When you feel anxious or upset try to slow your breathing.
- Using alcohol or drugs to cope may feel like it helps today but may cause more problems later.
- Do not take out your anger on others.

Seek professional support

People should seek professional assistance if they:

- Feel highly anxious or distressed
- Continue to feel excessive guilt about things that were or weren't said or done
- Reactions to the traumatic event are interfering with home, work or relationships
- Lose hope or interest in the future
- Are thinking of harming themselves or someone else.

Useful contact numbers include:

- Lifeline Australia (24 hrs) 13 11 14 (**www.lifeline.org.au**)
- Kids Helpline (24 hrs) 1800 55 1800 (**www.kidshelp.com.au**)
- RuralLink (Rural Communities) 1800 552 002
- Beyondblue 1300 22 4636 (**www.beyondblue.org.au**)
- Australian Red Cross 1800 810 710 (**www.redcross.org.au**).

BLAZEAID - KNIGHTS IN SHINING ARMOUR!

When a group of strangers calling themselves BlazeAid turned up in Esperance after driving from the other side of Australia when they heard of the fires, most affected farmers thought they wouldn't need them – they could fix things themselves.

Little did they know, BlazeAid would end up being one of the most effective means of recovery for many in the community. The group of merry nomads pulled down more burnt fencelines than all five other BlazeAid camps then operating in regional Australia combined.

A total of 917 kilometres of fence was pulled down by 164 volunteers over 116 days on 35 farms.

BlazeAid is a volunteer-based organisation that works with families and individuals in rural Australia after natural disasters such as fires and floods. Working alongside rural families, the volunteers help to rebuild fences and other structures that have been damaged or destroyed.

Equally important, volunteers also help to lift the spirits of people who are often facing their second or third flood event after years of drought, or devastating losses through bushfires. BlazeAid volunteers work in a disaster-affected area for many months, not only helping individuals and families, but also helping rebuild the local communities.

The group set up camp at Grass Patch and the friendly volunteers made many lifetime friendships with local farmers.

BlazeAid was a powerful step in the recovery of the Esperance community and they gave enormous strength to the victims of the fires.

1. Wrap party in full swing at BlazeAid headquarters, Grass Patch.
2. BlazeAid demo fence at Grass Patch Hall.
3. Grass Patch farmer, Natalie Bowman and Chris Males from BlazeAid toast to a job well done.
4. A BlazeAid volunteer with a cake made for the wrap up party.

(Photos supplied by ABC Radio)

POINTS OF ACTION STRAIGHT AFTER A FIRE

For Esperance farmers, once the fires had finally been extinguished, completing harvest in a timely fashion was the first priority. They were encouraged to take a break after that, but few did!

There was the concern over a relatively large area of land that had become prone to erosion, given the nature of the soil. Fortunately, rainfall in December topped up the already wet soils which enabled the establishment of cover crops.

Identifying soil types that were prone to wind erosion prioritised areas of concern. Heavy soil types were the least worry and could be left in their current state for next season. The light sands were the highest priority.

Tips provided by agronomists in the Esperance region soon after the fires are summarised below.

If you have suffered a fire, you need to remember, depending on the severity, the emotional impact will make everything feel insurmountable. Paddocks have been burnt for years with no adverse nutritional effects and just preventing serious erosion and maintaining your own mental well-being are key points in recovery.

Traffic

It is important to note traffic should be avoided all together even down to utes and motorbikes. Leaving traffic marks creates a point of least resistance for wind to start to shift the soil.

Burnt crop and germination

Many unharvested crops had all of the straw and leaves burnt but charred heads lay on the ground intact. When the grain was rubbed out of the heads it looked mainly sound with some burnt sections. A germination test on this grain to see how much remained viable was then done. Only a very small percentage (1% or less) was found likely to germinate.

Even though many grains appeared untouched, the heat must have killed the germ. If you had a 4 tonne crop and the heads are on the ground, at 1% only 40kg/ha of grain will be viable. Obviously the conditions will determine how badly the grain is affected so the amount of viable grain will vary. Since it is lying on the top of the soil then it is fair to assume that only a small proportion of that small percentage of viable grain will germinate.

Samples were also taken from crop right next to burnt areas and tested for germination. Since these areas would have been subject to heat radiating from the fire there has been some concern about the viability of this grain. Samples of standing heads that were charred; heads 1 metre from the edge of the fire; and samples further in, showed 100% germination.

If you want to avoid delivering charred grain with the risk of being downgraded, some farmers harvested these areas and used this grain for seed as long as it met all other criteria. The odd grain which had been burnt would only be a tiny fraction of the overall sample.

Weed seed destruction from burning

Research by Peter Newman and Dr Michael Walsh from Australian Herbicide Resistance Initiative (AHRI) has quantified weed seed destruction by burning.

To destroy 100% of ryegrass requires 400°C for 10 seconds and for wild radish 400°C for 30 seconds. Other grass weeds are likely to be within this range. When you burn a narrow windrow it will typically destroy 100% of the weed seeds as there is often 20 to 30t/ha of dry matter in the windrow itself.

1. Burnt grain heads.

2. SEPWA Projects Officer, Alice Butler and DAFWA Research Officer, Dave Hall doing soil tests on burnt and unburnt paddocks at Scaddan in March 2016.
3. Spraying burnt paddocks.
4. Truslove Nature Reserve in Scaddan.

Research into whole paddock burning of residue (after harvest) of a 3t/ha crop shows that this residue burns at close to 400°C but only for a few seconds. This resulted in 80% control of ryegrass seeds and 10% control of wild radish seeds that were on the soil surface. Where standing, unharvested crops are burnt it is highly likely that 99 to 100% of the weed seeds in that crop are destroyed. Given the high biomass it is also likely that 95% plus of the weed seeds on the soil surface would have been destroyed as well. However, very few of the weed seeds in the soil are affected.

Soil is a very good insulator. A temperature probe placed 1cm under the surface showed no change in temperature even when there was a windrow burning at 500°C just above it.

Hygiene

If you are spreading barley onto paddocks in an effort to stabilise them after fires, the fastest way to spread resistant weeds is to sow them. If seeds of weeds that are resistant to an important herbicide such as glyphosate are suspected in the barley seed, it may be better to look for another seed source that is lower risk. If this seed containing glyphosate-resistant weeds must be used then perhaps use the seed back in the paddock that it was harvested from, rather than spreading it around the countryside. Cleaning of the seed is ideal to limit the spread of resistant weeds but may not be practical in this situation.

Nutrition

Straight after the fire it may look like a lot of topsoil is blowing away. The fine ash is easily moved by wind. Only a small proportion of nutrients are in this ash with most still in the soil.

Although there will be some patches that scour, depending on the soil type there will probably be only up to a few millimetres of soil that will be removed. This will be only a tiny fraction of the total soil volume so most of the soil nutrient bank and soil biology will remain in place.

In terms of nutrient loss:

- Phosphate is the major nutrient that is stored in the soil. Most of the phosphate is evenly spread through the soil and in some cases it can concentrate in bands at depth. Losing the top few millimetres of soil will cause some small phosphate losses but most of it will be left behind.
- Potassium is a similar mobile nutrient and once added as fertiliser moves down through the soil profile.
- The biggest potential losses will be nitrogen through the loss of organic carbon that can concentrate at the surface. Our modern farming practice is good at supplying the crop with fertiliser nitrogen during and after seeding, so this can be managed.

There is also consideration of the lost nutrients contained in the grain and/or stubble that has been totally removed.

Damage can look worse than it is. The crop sown in the following year can achieve its normal potential as long as the nutritional needs are met. You are best to soil test close to seeding.

Soil preservation

If areas of deep sand are moving, they can be gouged out over time and then become extremely non-wetting and unproductive due to loss of organic matter.

Deciding on a course of action will depend on whether there is any burnt material or root material left on the paddock that will act to slow and hold the soil in place. If this is the case leaving the paddock untouched could prove the best option.

October and November rainfall in Esperance in 2015 had been below average, however moisture could be found in the lighter soils types within 10cm. Losing stubble after a fire meant fewer pathways for moisture entry, and the nature of the light soils meant a degree of non-wetting was a risk, making it hard for water to easily enter the profile.

Sowing cover

Waiting for a rainfall event can be the best bet to avoid additional wind erosion caused by sowing and then seed depth issues caused by furrow fill resulting in a poor germination.

Once the region receives a (summer) rainfall event, temporarily wetting up the profile, ideally a quick growing low-cost crop like barley or millet should be planted. Avoid sowing with fertiliser as cover is required not yield. If sowing barley 50kg/ha should suffice or 2kg/ha of millet. Seed should be sown very shallow in case furrow fill occurs. Creating a furrow will act to slow wind movement across the soil surface and help to harvest water.

Another idea is aerial seeding to avoid trafficking paddocks altogether. The plane is able to accurately spread at 50kg/ha or 2kg/ha if required. This would best be done prior to rainfall as some soil movement may help bury seed a little along with rain splash having the same effect.

Unfortunately, given summer temperatures the topsoil will dry out quickly so it will come down to the amount of rainfall required to germinate enough seeds. Perhaps a minimum of 20mm is required for this to work effectively. A delay in rainfall once grain is spread may also mean the seed could move around in wind events so this should be timed with forecast rainfall. However precision spreading is really not the key here, it is achieving ground cover.

Worry around creating a green bridge is the lowest concern. Once your cover crop becomes established desiccating this crop around early stem elongation is advised. This will give enough cover, minimise stored summer moisture loss and should create enough of a gap for a winter crop to be planted with minimal green material present.

Just allowing weeds to grow more than normally can be enough to create some form of cover. You will need a robust knockdown spray to reduce green bridge also.

When planning for next season ensure some thought is given to how the fires have affected long-term rotations which may need modifying as particularly canola becomes hard to establish in this scenario. There may be a need for additional nutrients, and early plant testing will be paramount to ensure deficiencies are rectified.

Each situation will be unique and you are best to work with your agronomist to decide on the plan that will work for you and your property.

Soil amelioration

Creating ridges to reduce soil erosion can be successful in some cases. This can be done by a number of means, including using deep-rippers and scarifiers.

If you have access to the necessary machinery and clay nearby, consider claying or delving the most susceptible areas. This is obviously going to depend on the area affected.

Insurance policies

Check your policies and any additional cover you may have taken out. Also check the subclauses in the context of your situation:

- Get in touch with your insurance broker and discuss the situation and what the outcome is likely to be.
- Get someone with a fresh pair of eyes to look through the policy to make sure nothing has been overlooked and you are able to apply for full entitlement.

Although crop loss insurance might not cover the entire yield, you will not incur the operational costs of harvesting, CBH charges and other costs involved if you were to have harvested the crop.

This cost saving will go some way to covering the difference between the lost income and the insurance pay out.

Washouts

If you don't have enough grain to fill a contract because of fire loss, it needs to be washed out.

Washouts work from the cost to replace your grain. If you can't fill your contract, the buyer must buy the grain elsewhere. The difference between the price they pay to source the grain from the market and your contract price is the cost of the washout.

- For example, if you have a wheat contract at $285/t FIS with an acquirer and they pay $290/t for replacement tonnes, your washout cost is $5/t.
- If your contract price is ABOVE the current market (as most of your forward contracts this year probably are), there will be no cost to washout.
- For example, if you have a wheat contract at $300/t FIS and the acquirer can buy replacement grain for $290/t FIS, your washout is $0 as it has not cost them anything to replace your grain.

You are allowed to source grain from other farmers to fill your contracts.

- To fill a contract in your name the grain will need to be delivered under your grower number, or transferred on Loadnet to your grower number.
- Some buyers will let you change a contract to another farmer's name.
- If you have a contract that is in the money, other farmers will be happy to fill it for you and perhaps you could split the profit.
- If you have a contract that is out of the money, you may be able to source grain from other farmers cheaper than the washout quote from the buyer.

Our advice is to start discussing any washout requirements as soon as your situation becomes clear.

Deferred grain contracts and tax

Consult your accountant for advice regarding insurance payments, existing deferred contracts and requirements for new deferred contracts.

FIRE PATH AND CASE STUDIES LOCATIONS

Fire Path

Many thanks to:

- Luke Marquis (South East Agronomy Services)
- Monica Field (Farm and General)
- Phil Smyth (Landmark)
- Ben Curtis and Mae Connelly (Farmanco)
- Theo Oorschot (Esperance Rural Supplies)
- David Hall (DAFWA)

for input on this section and throughout the book.

Dave and Linda Campbell

KARINGAL PASTORAL COMPANY, SCADDAN

By the time the Cascade fire hit Linda and Dave Campbell's Scaddan property on 17 November 2015, it was already one of the fastest and hottest fires ever to be recorded in Australia, travelling at around 55km/h.

The first 12 months afterwards were challenging for the Campbells. Not only were they grieving the loss of their three farm workers and long-time neighbour under such tragic circumstances, but while resurrecting their own fire-damaged property, enlisted to direct and help fund an independent report into what happened. Grass Patch farmer, Danny Sanderson worked alongside Linda and David on the report.

This report was tabled in State Parliament on the one-year anniversary of the deaths. Compiled by law firm Pacer Legal in Perth, in total the report made 12 recommendations ranging from urgent improvements to aerial support and mobile phone coverage, to long-term changes regarding clearer legislation governing bushfire control.

The report found the fire break between the Crown land and farmland at Cascade had last been cleared using chains six or seven years before.

It also uncovered a communication breakdown between the Shire of Esperance and Department of Fire and Emergency Services leading to each agency believing the other was in charge of the fire between the Monday evening and Tuesday evening.

By the time it was made a category-three fire at 7.30pm on Tuesday, four people were dead and 130,000 hectares of land had burnt out.

The Campbells also organised a memorial service one year on at Griggs Road, Scaddan, where the lives were lost. Around 100 people, including the overseas families of the Campbell employees, attended the unveiling of memorial stones.

The Campbells funded local artist Chris Siemer to create plaques on the stones to honour the lives of their three employees. The Curnow family organised a stone to remember Freddy which is located further up the road.

Around 200 people attended a dinner that evening in the Scaddan Country Club, hosted by the Esperance Shire Council and the Scaddan Volunteer Bush Fire Brigade.

Linda Campbell said support from the community for the report had been overwhelming and she was quick to point out that it wasn't about pointing blame.

"I'm hoping that our report blends in nicely with the Ferguson report done on the Yarloop fires and together we can make some positive changes," Linda said.

You can download the report from the Association of Volunteer Bush Fire Brigades' website at: www.avbfb.org.au.

The Campbell Family – the road to recovery

WRITTEN BY LUKE MARQUIS OF SOUTH EAST AGRONOMY SERVICES IN DECEMBER 2015

1. Linda Campbell with the independent fire report released in November 2016.
2. The Campbells – seeding and harvesting at the same time in December 2015.

A picture tells a thousand words. A crisp row of freshly burnt trees and a silo full of lentils smoking away in the background, a 120 tonne pile of canola about 200m away dancing with flames that is sure to continue to burn for months yet, and an air seeder working its way back and forth on 1 December with the hum of headers in the background.

This is the predicament that the Campbell family have found themselves in since the catastrophic fires that came through a few weeks ago. So what are they doing now in the aftermath of this tragedy? To quote Dave over the two-way in response to son Greg's question: "Dad are we doing the right thing", Dave just responds: "Well we just need to have a go", and that's exactly what they are doing.

While the Campbells have always been interested in summer crops, this year as a result of the fire they are looking at seeding in the vicinity of 1000–1500 hectares of millet at around 3kg/ha to help hold country together as well as encourage a good root system to help penetrate much of the clay that exists across their Scaddan farm.

They believe that although these crops still utilise summer moisture the combination of a solid root system, combined with the ability of summer crops to encourage soil biology to survive and thrive can only be beneficial to the crops that will be sown in the 2016 season.

In addition to the millet being sown the Campbell family are also taking this opportunity to undertake some soil renovation work with a deep-ripper on the back of the Cat track tractor. They are initially targeting the deeper sandy valleys to break up a compaction layer as well as try and bring up some clay into the topsoil, as these deeper sands have been poor performing compared to other areas of the paddock.

But they are not going to stop at the traditional ripping of sandy type soils. They are also looking at breaking up some of the harder compacted clays, again in an attempt to encourage crop roots to explore deeper into the profile.

While I was there they were targeting the better clays (non-sodic) and the signs were encouraging, with the clods of clay that were breaking out having some nice fresh roots from this year's crop amongst the clay. In other areas of the paddock where the subsoil clays are more sodic, they are hoping that the combination of cracking into the subsoil clay and opening them up (not bringing it to the surface) as well as the application of gypsum will help to continue to utilise more soil moisture and ultimately increase crop yields.

In a period of time when a family has had to endure more than its fair share of adversity, it is more than admirable that they are getting on with it and just "having a go".

OPERATION AT A GLANCE

Farm area: 2500ha arable

Area burnt: 2100ha

Enterprises: 2500ha wheat, barley, canola and peas

Soil types: Transitional – deep sands through to heavy clays

Annual rainfall: 400mm

Darren and Kelly Curnow

DARKEL FARMS, SCADDAN

Supporting his brother, Kym (Freddy) Curnow's sons in their first year of farming was part of the healing process for Darren Curnow. On reflection, he says having some defined purpose and direction was good for the Curnow family while they grieved.

Darren and Freddy had farmed their 5300ha operation together since 1987 and only a year before the fires split their business up. In hindsight this was a blessing in disguise, Darren said. They had farmed for so long together that most transactions had occurred without documentation and a lot of information was just filed away in each brother's memory. The split, which was primarily due to their children growing older, had been a time of both sitting down together and remembering who owned what.

"But I still sometimes wish I could have just an hour more with him to quiz him on a few things," Darren said.

So when Fred and wife Rosanne's 18-year-old twin boys, Tom and Riley, said soon after the fires that they wanted to work on their farm and help in the recovery, it was obvious that the 2016 seeding and harvest program needed to be done as one operation again.

"Helping the boys was easy. I already had a good understanding of Kainton Farms and the farming practice needed there," Darren said.

Darren and the twins sat down in early 2016 together with his older brother Mick and his nephew Daniel Hall and planned how they would run the operation. He had always known that Tom had a love of the farm, but was delighted to see how much Riley had also thrived in their first year back from boarding school in Perth.

"It worked well. I pretty much treated them like they were my sons," Darren said.

One year on, there was no evident yield effect from the fires. After a wet year, both farms yielded around 4t/ha on wheat, about 3.8t/ha on barley, 1.6t/ha on canola and 1.3t/ha on field peas.

Fortunately, both operations had been well insured in 2015 and although Darren didn't lose much machinery, the machinery shed burnt down at Kainton Farms. He was possibly under-insured on his burnt crop which was yielding about 3.8t/ha since he had it insured for 3.5t/ha.

1. Soil testing burnt paddocks at Darkel farms.

"But with no harvesting costs (fuel, labour, freight and CBH charges), we probably got close to the mark," he concluded.

Soil rehabilitation

From a mental well-being perspective, many of the Esperance farmers whose paddocks had been burnt felt that they couldn't watch the country blow for five months without doing something about it. Fortunately, there was also good soil moisture available to seed a cover crop.

But the weeks after Freddy died were a blur for the family. And while others who had been hit by the fires started soil rehabilitation soon after, Darren said it took him a few weeks to really be able to start thinking about the farm again.

In the beginning of December, barley was sown as a cover crop on more fragile areas at 50kg/ha with seed donated from other farmers who had been burnt. Then they harvested some of their own barley still left from the fires and seeded that until the soil became too dry.

"We just put it straight into the seeder and sowed it on the lighter country where the ground still had moisture and where it fitted into our rotation," Darren said.

Professional advice was unclear and varied, so the Curnows opted in the end to do what they felt was best for their operation at the time.

Fortunately, follow-up rains at the end of December (six weeks later) gave him a second chance to sow the lighter paddocks to millet (4kg/ha) and in the end around 75% of the farms were sown to either barley or millet.

Before the barley ran to head, they had an aerial sprayer in to kill it since it was too dusty to use a boom spray. Later rains resulted in some patches re-sprouting and so follow-up spraying was required in January.

Darren had expected that the grain on the ground on the paddocks that hadn't been harvested would germinate with the spring and summer rains. But none of it did.

The Scaddan area was the hottest, fastest and most volatile part of the fire and Darren said he had heard stories from some of his neighbours that they were driving at 80 kilometres per hour and the fire was still chasing them at the same speed – if not faster.

Recovering from disaster

Darren had left his property just prior to the fires and was helping stop traffic on the Norseman Highway when he heard the news of his brother.

Much later that night he returned to his devastated farm to find his home still standing. He and his employee spent a few hours trying to sleep in one of the dongas on the property. When they woke at dawn, they couldn't believe the sight of the place.

"It was a miracle that the house and shearing shed didn't burn down," he said. "As it was, parts of the shed were still smouldering."

All the trees around the house had burnt and even six months later the sand and ash were still getting into everything.

He said the best thing he did was to go on holidays with his wife Kelly for two weeks in January. After seeding they took five weeks off to travel around America on a motorbike. "It was made loud and clear to everyone in the family that holidays were important and everyone had to take them," he added.

He said talking about the fire and Freddy's death with friends and family had helped, as had professional counselling.

"At the time I didn't know why I was going to counselling, but I think just talking to someone was good."

A community gathering a week after at the Scaddan Country Club, where everyone could share stories and support each other, had also been a great help.

2. Twin brothers Tom and Riley Curnow taking a break from harvest on the family's farm at Scaddan.15 November 2016. Picture: Danella Bevis The West Australian
3. Harvesting what's left of the Curnows' crop, November 2015.
4. Soil testing at Curnows.

BlazeAid had been amazing. "At the start I felt awkward accepting help from volunteers to come and clean up our burnt trees and fences in such a depressing environment. But they were awesome. Some days, the wind would be blowing, it was hot and there would be dust everywhere, and there they were, rolling up my fences and just going about their business quietly."

He learnt that it was important to let others help. But soon after the fire, the family did choose to harvest the remaining 400ha of Baudin barley themselves, even though plenty of people had offered to do it for them.

At the end of harvesting the paddock of Kainton Farms' barley, the family drank beers Freddy had left in the harvester fridge the day before he died.

Darren's nephew, Daniel Hall, organised for that harvested barley to be taken to the local Lucky Bay Brewery and made into beer named Freddy's 10, after the number he played at Gibson Football Club. Family and close friends helped to bottle the beer.

Darren said that the 12 months after the fire had been tough, but good. "Tom said just the other day that we just have to accept what happened and move on."

In February 2017 Darren and Kelly will have ticked another thing off their bucket list when they ride their motorbike around Tasmania. In 2017 Tom would stay home to manage Kainton Farms and Riley would have a year in Perth. Their younger sister Emma was still at boarding school.

LESSONS LEARNT

- If you are suffering emotionally, talk to people including professional counsellors.
- Don't ever be too proud to take help from others.
- Take holidays and do the things that make you happy (get away from the farm).

Recovery on the farm

- Put in a cover crop on the sandy country as soon as you can (early) but leave the heavier country.
- Even just running a knife point through the soil can help to stop erosion by making ridges.
- Check your insurance regularly.

OPERATION AT A GLANCE

Farm area: 1400ha arable at Grass Patch; 3400ha Coomalbidgup

Area burnt: 800ha

Enterprises: 100% cropping: wheat, barley and canola

Soil types: Shallow to medium duplex sand over clay (Grass Patch)

Annual rainfall: 370mm (Grass Patch)

Greg and Donna Curnow

CASBEL FARMING, GRASS PATCH (AND COOMALBIDGUP)

In 2015, Greg and Donna Curnow expanded their Coomalbidgup farming operation and purchased a further 2000ha (1400ha arable) of land in Grass Patch. Of this, 800ha, all of which was in crop, was burnt during the November fires.

The fire left the farm bare and due to the fragile nature of the duplex soil, Greg chose not to disturb it. Instead, he just sprayed and kept it bare, driving over as little soil as was possible to reduce disturbance. In previous years, the property had been in pasture which he said contributed to the soil holding together quite well.

Prior to seeding they began dealing with the country by levelling the ground and tidying up the area ready for machinery to run through. Rotations were changed. Barley was sown on barley and wheat on wheat to prevent contamination issues.

Greg said the wet 2015/16 summer stabilised the topsoil and meant there was a good level of water in the profile come seeding. He also commented that 2016 had an exceptional finish to the season and this meant the growers who seeded cover crops in summer, which had the potential to dry out profiles, weren't disadvantaged in any way.

Frost damage impacted the 2016 yields on his Grass Patch farm, however interestingly the areas which were burnt did not suffer as severely as those unburnt.

With hindsight, Greg said he wouldn't do too much differently, just spray it, let it be, and try not to look at it too much.

Small positives he took from the fire were less disease and weed pressure as well as new fencelines and fences. Greg commended the efforts of BlazeAid, which contributed to 15km of new fencing on his place.

Greg has ripping, delving and claying planned for his Grass Patch farm in 2017, but this work was always going to be done, irrespective of the fire. His general feeling was the 2016 season ended up as being good as it would have been regardless of the fires.

1. The 2016 season ended up showing no signs of fire damage. With burnt areas less impacted by frost.
2. Burnt areas on the Curnow farm were less impacted by frost in 2016.
3. Greg Curnow.

Nigel and Lynne Norwood

KINLIAVAN FARMS, SCADDAN

In the November 2015 fires, Nigel and Lynne Norwood experienced extensive damage to machinery and some farming infrastructure. With no machinery to sow any cover crops, Nigel aerial-seeded his paddocks around three weeks after the fire on 1600ha of his Scaddan farm.

Barley and wheat were dropped from South East Air Ag Services at a rate of 40kg/ha. Nigel had hoped that the grain (sourced on-farm and not too badly affected by the fire) would germinate enough to cover his bare soils till opening rains the next year.

Knowing that rains were coming and soil moisture was quite good already, this was a relatively cheap, easy and quick action to take.

Germination of the grain was patchy, but eventually weeds grew to cover the blowing paddock and these were then sprayed in late summer.

Rainfall events during harvest had left a reasonable amount of soil moisture which was topped up on 5 December by a further 20mm.

Together with wife Lynne and sons Bevan and Liam, the family worked hard for months after the fires, trying to stop erosion and working with insurance companies and machinery dealers to replace all the machinery and infrastructure that was lost.

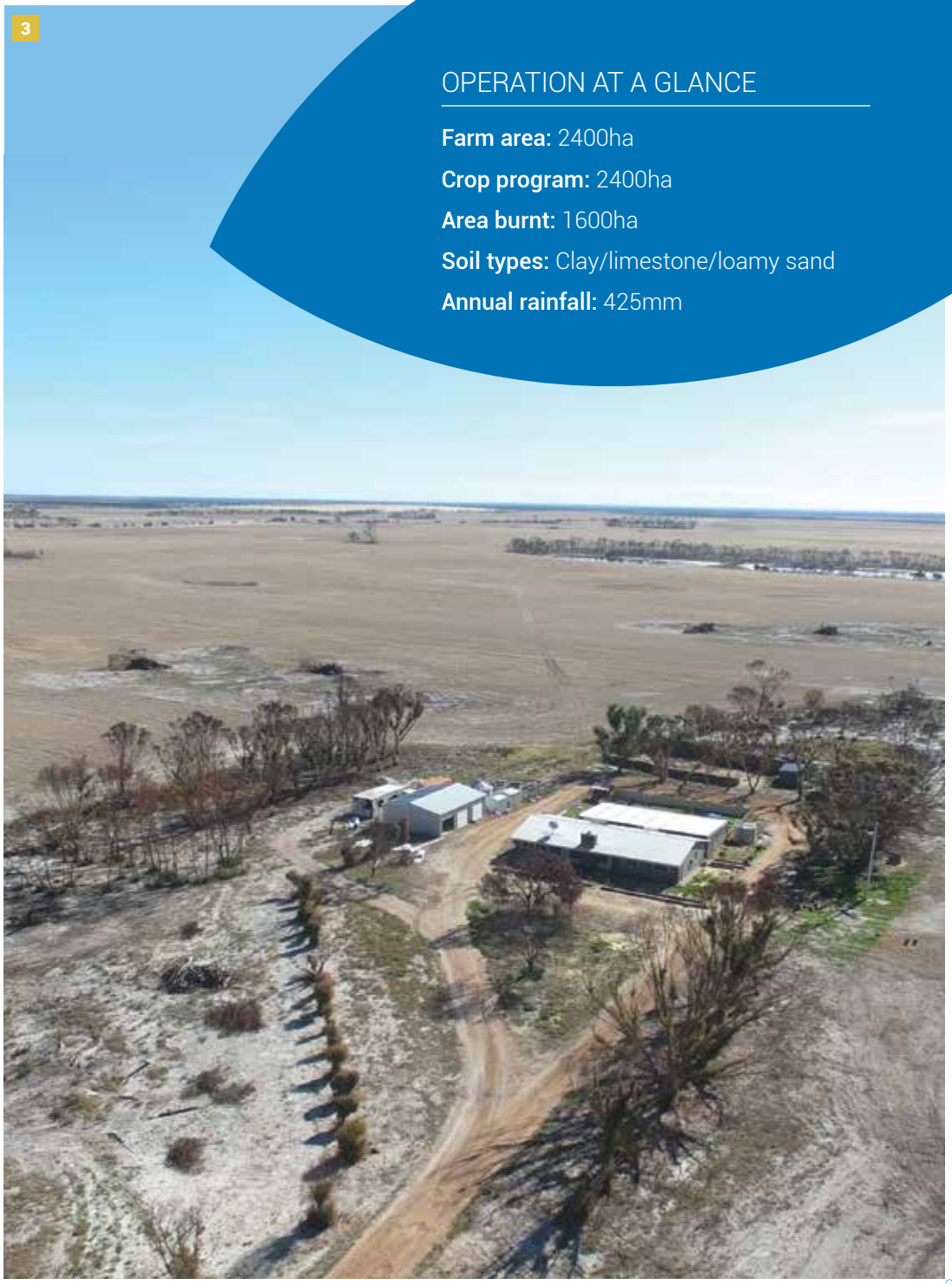
It was a miracle that their house and another dwelling on the property didn't burn, but the garden and everything around the family home were gone. Community members had rallied to deliver baled straw that was put around houses to stop some of the sand and dust from blowing in from surrounding bare paddocks.

One year on and the family is relieved that their paddocks are covered again following a good wet year.

1. Re-growth on the trees in 2016.
2. Nigel Norwood picking his sons, Liam and Bevan up from the bus stop in December 2015.
3. The Norwoods' home was saved in the fire. (December 2015)

LESSONS LEARNT

- Wouldn't bother with aerial seeding again. Didn't get enough soil contact for a good germination. Nigel thinks he would have been better off ripping the soil to create ridges or to seed the paddocks.
- It's not possible to insure everything on-farm; however, it's important to insure everything you can with a GST inclusive value.
- It is important to insure grain bags individually, being aware of different insurance clauses with different companies.
- Ensure important documents and data are stored in an electronic format easy to grab when facing an evacuation scenario.
- Ensure that you support local businesses as it is the local businesses that will support you in times of hardship.
- Be gracious and accepting of offers of support. It helps with the recovery process in more ways than one.
- Don't be complacent. Be bushfire ready and ensure that you have a plan in place.



OPERATION AT A GLANCE

Farm area: 2400ha

Crop program: 2400ha

Area burnt: 1600ha

Soil types: Clay/limestone/loamy sand

Annual rainfall: 425mm

Brendan (Shorty) and Rhonda Morcombe

WHYALLA, SCADDAN

Shorty and his mother Rhonda Morcombe had almost finished their second ever harvest when their property was wiped out. Only 40 hectares were not burnt.

Three days later Shorty couldn't stand watching his paddocks blowing in the wind and he started reseeding and shallow ripping the farm again in the hope of covering the paddocks and utilising stored soil moisture from spring rainfall.

He worked day and night to seed 1100ha to barley and millet into soils that were already damp due to decent rains the week prior to the fire.

"Pretty much everything we sowed established, bar the 10% which in hindsight we seeded too shallow and it then got too dry and blew," Shorty said.

The cover crops were allowed to grow until the first week of January when they were sprayed out with glyphosate. Some hung on until a double knockdown was done prior to seeding in April 2016.

"In hindsight we did the right thing and it was good to not see it blowing," Shorty said.

His late father Trevor couldn't stand looking at wind erosion, which had been more prevalent prior to no-till farming systems being adopted in the Esperance region.

Follow-up rain for most of December and January resulted in excellent coverage of the barley (seeded at 15kg/ha) and millet (5kg/ha).

Shorty said the exercise wasn't all that costly. The ripper was loaned to him from Mark Wandel, diesel was on hand for harvest and the knockdown sprays would have been done anyway (although he used a larger rate to kill the barley and millet).

Calthrop seemed to be more prevalent after the fire – possibly due to the fire breaking the dormancy and lack of competition. Glyphosate eventually killed that.

Snails seemed to be fewer after the fire and ryegrass control was also better.

All fences had been burnt and BlazeAid had helped rebuild them and clear out the garden around the homestead (most of which had been burnt and died) along with the fences, arbours and sheds.

Financially, Rhonda and Shorty said they weren't too badly affected due to good insurance cover, although the shearing shed wasn't covered and burnt to the ground, along with contents such as a boat and lawnmowers, etc.

They said the community had been absolutely fantastic and large bales of straw had been delivered around their house to stop sand and dust blowing in. Rhonda said the community was much more aware of looking out for each other after the fires and it had bought everyone closer together.

"A lot of good has also come from the fires," she said.

The 2016 yields had shown no decline from the fires and Shorty said he was happy with everything he had done. "We were very lucky with the moisture in summer and the following 12 months," he said.

LESSONS LEARNT

- Sow a cover crop into moisture – millet and barley – as soon as you can.
- Ameliorate the soil through deep-ripping to bring up clumps and form ridges.

1. The Morcombe homestead surrounded by burnt paddocks in December 2015.
2. Shallow ripping the soils a week after the fires.
3. Shorty Morcombe in a paddock re-sown to barley and millet in December 2015.

OPERATION AT A GLANCE

Farm area: 1500ha

Area burnt: 1450ha

Enterprises: Continuous cropping – canola, wheat, barley and peas (small amount)

Soil types: Even, shallow sand over clay, loam over clay

Annual rainfall: 400mm

OPERATION AT A GLANCE

Farm area: 200ha, plus a further 160ha leased

Area burnt: All

Enterprises: 70% perennial pasture (lucerne, ryegrass and kikuyu), 44 breeder cattle and 70 ewes (owned by their son, Jack)

Soil types: Alkaline black peat in the valleys and alkaline sandy ridges

Annual rainfall: 600mm

1. Theo Oorschot in a paddock of ryegrass which was originally burnt.
2. Loading sheep to be sent for agistment days after the fire.
3. Loading stock to send for agistment.

Theo and Sheila Oorschot

NAKURU PASTORAL COMPANY, MERIVALE

Theo and Sheila Oorschot are no strangers to fire. Having lived on their coastal property, 30km east of Esperance for almost two decades (purchasing the property in 1997 and started living there in 1999) they have seen fires many times before. However, the November 2015 Merivale fire was like no other!

All that was left of their farm by 4pm on 17 November was their house, sheds and most of their livestock. The entire property burnt around them while they bravely stayed with their cattle, sheep and horses on a small kikuyu holding paddock near the stables and sheds.

“The kikuyu in the valley with no big trees around saved us,” Theo said. “We also had a fire plan and that worked.”

He said that the fire unfolded so fast around them, they were too busy to communicate with anyone to let them know they were safe. “I lost all sense of time at the peak of the fire,” Theo said.

Twice between 2pm and 4pm, Sheila feared for her life while she was with the stock and her beloved horses. “The intensity of the heat was unbelievable at times,” she said.

Their son Jack, and Theo’s boss, Greg Hard, who owns Esperance Rural Services, stayed with them to help save their home, stock and sheds. Theo said having proper face masks and fire-fighting clothes from being a long-time member of the local fire brigade was also enormously helpful on the day.

He said there was only one moment where he worried that they had made the wrong decision to stay and defend their home, but in hindsight, he would do it again.

But they do regret not having communicated more with local fire authorities and loved ones who were unable to contact them during the blaze and feared for their lives.

“It all unfolded so fast. We were both in town at 10.30am oblivious to anything, when we were told our place was under direct threat,” Theo said.

They just had time to get back to their property and herd the livestock into the valley holding paddock. Sprinklers were put on around the house and machinery was taken out of the sheds. There were also issues with mobile phone signals on the day.

Losses

They lost 80% of their fences, their main water tank melted, and seven of Jack’s ewes perished.

“We couldn’t get all the stock in,” Sheila said. “One cow and newborn calf wouldn’t come, along with two bulls. But they wandered in the next day wondering what all the fuss was about – we couldn’t believe it.”

Some of the poultry near their house also died. Most of their garden was lost, including a memorial rose garden dedicated to their daughter Lucy who died tragically on the property in late December 2013.

Only eight of the 42 roses given to them survived the fire, but Sheila said friends (and even strangers) had been amazing; coming to help prune the survivors back and help plant new ones sent from the many people who knew and loved Lucy and the family.

Rebuilding

The Oorschots, including Sheila and Theo’s children, Kate, Sarah and Jack, along with their extended family and friends spent many weeks during the summer rebuilding fences and rolling up and burying the burnt fences and other damaged infrastructure.

4. Theo and Sheila assessing the damage after the fire. (18 November 2015)
5. Horizon Power fixing infrastructure after the fire.
6. Sheila going for a ride in the burnt landscape on one of the horses saved during the fire. (22 November 2015)
7. Sheila in Lucy's memorial rose garden which was burnt during the fire, but has been re-built. (June 2016)

"There is always good to come from incidents like this," Theo said. "We have been able to improve the fences and the support from people we didn't expect was fantastic."

Sheila said that after the loss of Lucy only two years prior, recovery from the fire in comparison was very easy. The loss of one of their beautiful children had put everything into perspective for them.

Their local insurance company, WFI, had been quick to respond and supportive. And local veterinarian, David Swan, had provided his services for free to help check over the stock and treat any burnt ones. The cows were tested and any that weren't pregnant were sent to market, with the remainder sent away on agistment.

Once the fire had gone through the property, they had to secure the fences and get more water and feed to the animals in the small 6ha paddock.

It was very difficult to get feed into the property due to road blocks which continued for days after, and they couldn't get stock off the property either. They had no power but luckily there was still water from a tank at the sheds which all fittings had melted off.

Hay and straw was donated for the stock they didn't send on agistment.

But thankfully, due to the wet spring, within three days the kikuyu was shooting again and Theo said the perennial pastures (lucerne, ryegrass and kikuyu) grew back better than ever.

Fortunately, it rained soon after the fire and they sowed Urambie barley as a cover crop in some of the valleys and everything established relatively quickly. An agronomist by profession, Theo said the pastures hadn't missed a beat and the ryegrass seedbank hadn't been affected at all.

Horizon Power was also fantastic. Power had been re-installed quickly and the old wooden poles, which were replaced by metal poles, were donated back to the family to be used as strainers for new fencing. The local Coates Hire Company had provided a generator free of charge until the power was restored.

Theo said he did worry about the native vegetation regrowth. Because of the intensity of the fire, some species just weren't growing back and he feared that weeds were going to take over in some areas.

Theo and Sheila said there was a lot of good to come from the tragedy of the fire. The rebuilding had been hard work but it was lovely to have their children and friends there to help them. "Life does go on," Theo said.

Biscuits and cakes were sent from far off places; many materials were donated; people had been so generous; and this had been unexpected and was greatly appreciated.

LESSONS LEARNT

- Get stock off the paddocks as quickly as possible to minimise erosion after the fire.
- Kikuyu pastures were their saviour around the house and sheds.
- Have a fire plan and stick to it.
- Use your local insurance companies.
- It's amazing how quickly the soil and vegetation can return to good health. If you are going to plant a cover crop, then act quickly after rain.
- You need adequate fire breaks on both sides of your fences. Due to many of their perimeter fences bordering Crown land, there was only a fire break on their side. All these fences bordering Crown land were burnt during the fire.
- Joining a local fire brigade is important.
- Life goes on and it's amazing how quickly you can rebuild pastures and fences.

OPERATION AT A GLANCE

Farm area: 6000ha total crop

Area burnt: 400ha of standing crop and 1000ha of stubble (15km of fencing)

Crop rotation: Wheat/barley/canola

Soil types: Duplex

Annual rainfall: 400mm

Christian (Wags) Siemer

TALISKA, SCADDAN

By the time the fire reached Chris (known to everyone as Wags) Siemer's Taliska property, 15km to the east of Scaddan, the wind was starting to change direction and get cooler. Paddocks in crop and stubble burnt to within 100m of his and his employee's houses and took many days to extinguish. Repeated flare-ups in the neighbouring Truslove Nature Reserve, which had been severely burnt, were fuelled by smouldering logs which kept being fanned by constant and changing strong winds.

When the fire first hit late that Tuesday afternoon, most of his employees had been sent to town. Wags was intent on sheltering in a cellar as it went through, but was talked into evacuating by his employees and so reluctantly fled to Grass Patch.

"I fully expected to lose everything as I drove away," he said. "It was one of the worst feelings returning a few hours later and not knowing what we were coming back to."

1. Wags Siemer in a 2016 paddock which was burnt in 2015.

Fortunately, farmers from further south-east (Neridup) had been watching the fires' progress from a hill and when the wind changed direction (from west to south), pushing the path of the fire away from their farms, they were able to move in and save the three houses under threat on Taliska.

Since all power, mobile and phone services were defective from midday, communication was only by two-way radio. The Neridup Fire Brigade farmers were situated between the two fires (Merivale and Scaddan) and they spent another four days and nights mopping up and fighting repeated flare-ups of both fires.

Many of the volunteer fire fighters spent the nights fighting the mallee fire (putting in fire breaks and extinguishing embers, while it was cooler and less windy) and then moved to fighting the fire around Merivale (along the coast) during the day.

Wags, along with family, employees and friends, stayed and protected the property until Sunday – five days later – when rain and cold weather allowed them to return to harvest. He was helped by the volunteer brigades on and off also.

The recovery

To stabilise the paddocks, Wags chose to deep-rip using a Bednar Delver to bring up clay from around 40cm. This helped to stop wind erosion. He also used a Bednar Swifter Disc 12m wide cultivator on some of the paddocks that were clayed and others that were delved.

Wags said he was surprised at how little the weeds or burnt grain germinated; he had expected to get cover from what was left on the paddocks, especially with such consistent summer rainfall. “It goes to show just how hot the fire still was,” he said.

What weeds did germinate, he let go rampant until autumn.

In hindsight, he thinks he probably should have seeded barley, like some of his neighbours did, to achieve better ground cover. However, due to the ensuing mild, wet summer, there was little erosion.

Blowing topsoil had formed mounds on unburnt stubble sections in the paddock. These were spread back out prior to seeding. “We did lose some topsoil, but I don’t think it was very much,” Wags said.

Seeding in 2016 was done early as soon as soil moisture was right and seeding rates for canola on the burnt paddocks was increased, along with nitrogen.

“We have been amazed at how well the canola has gone on the burnt paddocks,” Wags said. “Yields could have actually gone a little higher on the areas burnt – even though the seeding and nitrogen applications have been the same.”

Wags said the plants were noticeably taller and had germinated better. Disease and pests had also been noticeably less on the burnt country.

Support from friends and family had been amazing. His kitchen was used as a centre point for getting food out to fire fighters in the days after, and he was humbled by the support from people in the community.

In 2016 Wags joined the Scaddan Restoration Reference Group formed by the Esperance Shire Council.

2. Wags checks his barley crop sown in a burnt paddock on his farm in October 2016.

3, 4 & 5. A Bednar Delver was used to bring up clay and stabilise the burnt paddocks.

6. Wags checking re-growth in Truslove Reserve which neighbours his property.

5

LESSONS LEARNT

- Harvest an area of the crop in between burnt and unburnt areas to ensure there's no smoke contamination of the grain.
- Take all flush caps off rainwater tanks and clean them out after fire.
- Deep-rip the sandier country and sow it for cover. This is a better long-term solution as the ripping has lasting effects.
- Do a germination test on the burnt grain left on the ground so you know what you are dealing with.
- Sow paddocks that were burnt with standing crop on, to the same crop the next year to avoid contamination from last year's seed (wheat on wheat). You may think it won't germinate – but some probably will once decent winter rain arrives.
- When seeding canola, go early into moisture to get good coverage. Sow around 1kg/ha more and sow on the heavy country because of the increased wind erosion risk.

6

OPERATION AT A GLANCE

Farm area: 5500ha, 3000ha cropped

Area burnt: 2400ha and 720 ewes

Enterprises: Cropping, 6000 sheep

Soil types: Transitional duplex

Annual rainfall: 400mm

David and Katherine Vandenberghe

RIVERLAND FARMS, SCADDAN

The November 2015 Cascade fire burnt around half (2400ha) of Dave and Katherine Vandenberghe's Scaddan property late on that Tuesday afternoon. A mob of 1200 of their prized stud Merino ewes were trapped in its path and 720 died either during the fire or in the month after the blaze.

Dave recounts that the following days and months were a blur of adrenalin-fuelled emotional roller coasters. Things finally slowed down when he escaped and went on holiday to Belgium with Kath at the end of June 2016 – seven months later.

Most significantly, Dave was a good friend of Freddy Curnow and one of the last people to see him alive. As the fire closed in on the Vandenberghe property, Freddy kept watch on its progression while Dave moved a mob of sheep to what they hoped was safer ground before Freddy left to help others.

Dave was also one of the people who phoned police to tell them there had been four deaths on Griggs Road later that evening after he had gone looking for Freddy – knowing something had happened. Consequently, for weeks after, Dave was entrenched in funeral plans and cooperated in numerous police and fire investigations and reports.

Additional to that burden, in the following days, while grieving the loss of his mate, he dealt with dead and severely injured stock, burnt paddocks and infrastructure at the same time as continuing harvesting what was left of his wind-ravaged crops. Plus, he opted to seed 800ha of country soon after the fire in early December.

"It was more for my own emotional well-being than anything," he said. "I just couldn't stand watching the paddocks blow any longer."

By then, they were back seeding around the clock and still harvesting while tending injured sheep.

Dave found the burnt mob of ewes first thing Wednesday morning following a sleepless night dealing with police in response to the tragic deaths and gruesome scene he had come across on Griggs Road.

He said the farm he returned to that morning was totally wiped out and the task that lay in front of him wasn't one for the faint-hearted. Four hundred ewes were already dead in the paddock and that day he and around 30 helpers (including the local vets) had to euthanase a further 250 for welfare reasons and then bury all the bodies.

A pit was dug near a holding pen in the paddock and Dave said one of the most difficult and frustrating tasks was accessing machinery.

"But it was amazing the people who helped us that day. One bloke, who we didn't even know, turned up with a truck to help move the sheep."

By midday Wednesday, all surrounding roads were closed by emergency services due to a coronial enquiry and on-going fires in the region. This made the initial days of recovery so much harder – due to the difficulty in getting veterinarians, feed and machinery, etc. onto the property. Combined with that, there was no phone reception or power so communication was difficult and added to their stress.

Handling burnt animals

Moving the damaged stock in the paddock had to be done quietly and without using working dogs as many of the sheep were blind and in a terrible state. Around 470 remaining ewes were able to be walked into a make-shift holding pen where they were closely inspected and then the difficult decision was made to try and save each animal or destroy it.

1. Pregnancy testing ewes at Riverland farms in January 2017.

"In hindsight, for the welfare of the animals, we should have destroyed more than we did that day," Dave said.

"Although it is a business we are operating, I like to give any animal a chance of survival, so that's what we did."

A ramp was constructed in the paddock and the survivors were loaded onto the truck and moved close to the shearing shed into a small holding paddock with hay and water.

Dave said two of his mates stood with him and helped with making the tough welfare decisions. "This was very stressful for them because they were making calls that affected me and my business, but it was really helpful to have them there," he said.

The local Swan's veterinarian, Enoch Bergman, and a group of veterinary students from Murdoch University helped with treating the animals and pharmaceutical companies donated medicine.

The remaining mob was given a long lasting antibiotic (Alamycin) and the ones with external burns were treated with anti-inflammatory pain relief and Tri-Solfen. This was repeated a week later.

The ewes had nine months of wool on them which provided insulation from the fire, but many had terrible burns to their faces and feet. A sign of the intensity of the fire was that some ear tags had melted also. The more open-faced ewes had more injuries.

The antibiotics worked well and there were no further deaths for two weeks. Dave said some were suffering lung infections which weren't evident at first and others who had hoof and leg damage struggled to get to food and water and eventually died or were destroyed.

Some drowned in the dam because their feet were so sore they couldn't make it out. Many of the wounds became fly struck. The true extent of some of the injuries wasn't at first clear.

A further 15 ewes had to be put down after a fortnight and by main shears in mid-December a further 40 had died. Once the mob was shorn, there were no more deaths. Because they had been in good condition prior to the fire, that really helped when they were struggling to move and eat in some cases.

Grain poisoning

Due to the 100km wind gusts on the Tuesday, there had been significant (1 to 2t/ha) grain lost which was lying in paddocks.

Unfortunately, a further 30 lambs were struck by grain poisoning in early December due to eating the lost grain off the ground.

"We had introduced them to grain for a month prior, so we thought they would be OK," Dave said.

The sheep were shorn between Christmas and New Year and were then sent on agistment and returned to the farm in time for autumn lambing. Surprisingly, their fertility wasn't affected which was possibly due to their fat condition prior to the fire.

Seeding and fencing over summer

Most of the burnt country was seeded to grazing millet (3kg/ha) and serradella which provided feed for the sheep during most of 2016. Burnt paddocks that were cropped were sprayed out in March.

Their tractor was burnt but fortunately Tom and Victoria Brown from Condingup loaned them theirs to use for the seeding program.

The 2016 harvest proved buoyant for the Vandenberghes and Dave said yields were as good as they had ever been in areas that hadn't been frosted. However, protein had suffered in paddocks that had been burnt that were in pasture the previous year.

2. Seeding during harvest after the fires in December 2015.
3. Katherine and Dave Vandenberghe.
4. Burnt patches of wool from embers landing on the sheep.

LESSONS LEARNT

Sheep

- Get a veterinarian out immediately to inspect all affected animals and think about how much antibiotic you may need before they leave town if you are a long way out (or there are road blocks still in place).
- Check your insurance!
- Flies get under the scabs around three weeks after burns. In hindsight Dave wishes he used Clik (protectant from flies).
- Source mobile yards to take to the paddock.
- Administer drugs and then shear to stop the fly issues.
- Put the badly affected sheep into a small holding pen with a trough and quality feed in close proximity – so they can always access the water easily and don't have to walk too far for food and water.
- You can't tell how severe the injuries are to begin with. Even with intensive treatment, it is rarely possible to save sheep with greater than 15% of their body burnt (less if vital areas are burnt).
- Burns to the groin, udder, anus and vulva are unsightly and may take weeks to heal if a large area of skin is affected. They eventually heal, and are not life threatening provided there is no secondary infection, and flies are kept away.
- The udders of ewes should be examined. Scar tissue can close the orifice of badly burned teats, but minor scabs will usually shed after a few weeks, leaving teats functional. Severe burns to the anus can cause faecal incontinence if sphincter muscles are damaged.
- Sheep with respiratory distress need to be monitored regularly and given antibiotics and pain relief as instructed by a veterinarian.

Pastures and crop establishment on burnt country

- Make sure you get the right millet for grazing – some varieties can be poisonous to stock.
- Millet is better than barley as it grows for longer and ends up taller, providing better coverage before it sets seed. Barley matures quicker which can cause seed contamination the following year.
- Control weeds such as melons in the millet.
- Millet will use more nitrogen than you think.
- There were no noticeable yield differences between burnt and unburnt areas in 2016, but there was a noticeable difference in protein on wheat crops that had grown on burnt pasture country. Dave put this down to nitrogen deficiencies caused by high organic carbon removal from the burnt pasture. This wasn't so evident on the burnt stubble paddocks.
- Dave would definitely seed again – on heavier and lighter soils. It was a good mild summer which meant that erosion risk was lower. "You don't know how dry summer and autumn is going to be and it's too risky to leave it bare."

OPERATION AT A GLANCE

Farm area: 12,670ha

Cropped area: 12,670ha

Area burnt: 3800ha

Soil types: Predominantly heavy grey clay

Annual rainfall: 350–400mm

1

Hughie, Lee, Bradd, Mykala, Jason, Tara, and Rory Vermeersch

BELAIR FARMS, CASCADE

1. Jason Vermeersch checking burnt and unburnt soils in May 2016.
2. Bradd and Mykala Vermeersch's home was saved in the fire.

The Vermeersch family has farmed at Cascade for more than three decades and in that time has moved from a mixed cropping/ livestock rotation into a total cropping program. Due to improved agronomic practices and technology they have also managed to increase yields in recent years and 2015 was one of their best on record.

Hughie, along with sons Bradd, Jason and Rory had finished harvest on the farms burnt only the day prior to the fire, which came out of bushland onto thick stubbles. Massive fire breaks prepared by the family in readiness for the fire did little to contain the blaze which was travelling at 15 kilometres per hour when it entered their property and had embers leaping 2km in front of the fire head.

If it wasn't for the bravery and determination of a local fire crew, Bradd and Mykala's house would have burnt down, but unfortunately no one could save the 16 grain bags full of Baudin barley which were stored in one of the paddocks nearby.

After much discussion, it was decided soon after what was the worst fire they had ever encountered, that the family would do nothing to their bare burnt paddocks and focus instead on finishing harvest and on the many other clean-up jobs that lay in front of them – including the task of mopping up the grain from the burnt bags.

One year after the blaze

Jason Vermeersch said the 2016 harvest had fortunately revealed that there was little change in yields on the burnt country from unburnt and his family was happy with their decision to leave the soils alone.

It was a busy enough lead up to seeding in 2016; dealing with insurance brokers, fencing and general cleaning up of the destruction left behind by the blaze. But he said the support had been fantastic – especially from CBH, Horizon Power, BlazeAid, Elders Insurance and the Esperance community.

The greatest change he noticed during seeding in 2016 was that the tractors had used around 5% more fuel when seeding into the burnt ground compared to the unburnt ground. This was possibly due to less crop residue (organic matter) which hindered the soil's ability to retain moisture.

There was much conjecture after the fires as to whether the soil should be resown or worked up. However, the Vermeersch family did nothing to their burnt paddocks, which consisted of heavier soil types. Jason said it had been awful to look at them on very windy days, but almost 100mm of rain over summer and the presence of roots from the crop had helped to eventually stabilise the surface which thankfully limited the erosion.

In total, 3800 hectares of country burnt, but yields in 2016 on the burnt country had shown no signs of decrease and there had been no change in fertiliser inputs on the burnt and unburnt country.

Despite soil testing by the Department of Agriculture and Food showing that they may have lost up to $50 per hectare of nutrients from the burnt country – mostly organic nitrogen – the Vermeerschs said the average yield on both burnt and unburnt areas was still around 3.5t/ha.

If anything, Jason said the fires had seen some positive results during the season, with less disease visually evident in the burnt paddocks. Germination was exceptional as there was great seed soil contact and no trash flow issues.

A negative was that there had been more water erosion and waterlogging in the burnt areas which had resulted in patches of ryegrass infestation due to the very wet season.

3. Burnt and unburnt sections of the farm.
4. A line of burnt and unburnt soil.

LESSONS LEARNT

- Leaving the heavy soil types untouched worked well due to the mild summer conditions that followed.
- Make sure your insurance is reviewed regularly and your grain bags are insured. The Vermeersch family was well supported by their insurance company and happy with the service they received also from CBH.
- Since the fire, they have upgraded their own fire truck and are more organised than ever with their fire plan.

BACK COVER PHOTOS

1. Prime Minister Malcolm Turnbull met with firefighters and the Esperance Shire at a community function in December 2015.
2. Rhonda Morcombe with straw bales that were placed around houses in Scaddan by community volunteers to protect homes from sand and ash blowing in the weeks after the fire.
3. A Bednar delver was used to bring up clay and stabilise burnt paddocks at Scaddan on the Siemer's Taliska property.
4. Nigel Norwood, Scaddan and Scott Mackie of South East Air Ag two weeks after the fires; aerial seeding barley while grain still burns in heaps behind them.