

# THE BURNING QUESTION

Why is sugarcane in NSW burned before harvesting?



Sugarcane has been grown in the NSW Northern Rivers for around 150 years. The region currently has some 34,000 hectares of farmland with 500 farming families growing up to 2.4m tonnes of sugarcane annually. Our three local sugar mills and refinery employ local people, with as many as 1,200 jobs supported both directly and indirectly.

Every year, during the sugarcane harvest season, the NSW sugar industry receives enquiries and some complaints in relation to smoke and ash from cane fires.

Principally the complaints are in relation to air pollution, and the nuisance that the ash causes – such as on washing on the line and in swimming pools.

This publication has been produced by the NSW sugar industry to provide background information about how and why sugarcane is burnt prior to harvesting.



**NSW Canegrowers  
Association Inc**

Updated: July 2021

## **Why is sugarcane still burned in NSW?**

In Queensland 70% of the crop is harvested "green" (i.e. not burned before harvest) while in New South Wales burning of cane prior to harvest is still common practice.

This has been interpreted by many in the community that harvesting the cane green is suitable for the whole of the Australian sugar industry and that in NSW the industry continues to burn cane because it doesn't care. This is not the case.

This issue is complex, and there is no simple solution. If it were that simple, we would have stopped burning a long time ago.

The NSW sugar industry is keenly aware of where it operates with the high reliance on the tourist industry and the impacts on local residents from ash and smoke associated with cane burning. A significant proportion of the local population is not directly affiliated with the sugar industry and don't have a lot of empathy towards the issues associated with the preharvest burning of sugarcane.

Burning of cane prior to harvest is one of the most onerous tasks that cane farmers have to do. It is dirty, dangerous work that usually has to be done late at night or very early in the morning and they would prefer not to burn.

The NSW sugar industry and other parts of the world where pre-harvest burning is still required have been working to find a solution to this problem for many years and are continuing to do so.

In 2002 the Bureau of Sugar Experiment Stations (BSES) produced a report '*Sustaining Un-Burnt Production Systems in Cool Wet Environments*'. The research confirmed the concerns about the negative impact on productivity of harvesting the cane green in NSW. The research found that retention of the leaf residues (called cane trash) after harvest always produced a poorer result than did trash removal on the heavy clay soils in the higher rainfall areas of NSW. This is primarily due to the trash keeping the soil cool and damp for an extended period and affecting the re-growth of the crop.

Based on these results the industry undertook investigations into the possibility of whole crop (or total biomass) harvesting to provide fuel for the production of renewable electricity. It was hoped that a successful outcome in this area would eliminate cane burning; provide a solution to the productivity impacts created by crop residues and deliver renewable electricity to the region and the sugar industry made significant investment into finding an alternative to cane burning.

The construction of the biggest renewable electricity power stations in Australia located at Broadwater and Condong in 2006 at an investment of \$220m was principally to address this issue. Considerable investment was also made by the growing and harvesting sectors. The idea was to harvest the whole crop (cane and leaf) and utilise the additional fibre collected as fuel for the boilers.

Despite 5 years of effort, the economics did not stack up and we had to return to the practice of burning cane before harvest. This does not mean that we don't understand the issues associated with this practice and the advantages of finding an alternative economic solution.

## Advantages of Not Burning

Finding an economic solution remains a priority. Some advantages of not burning the cane include:



Cane farmers avoid the disruption and danger posed and save time and money.



The organic matter (trash), being a renewable resource, could be used for other purposes – such as boiler fuel or for the production of other higher value products including paper, fibre packaging material, biomass for distillation, garden mulch etc.



There is no smoke which benefits the environment.



The nuisance of ash on the community is avoided.



The sustainability and profitability of the industry and the local area is enhanced.

## Why do you burn the sugarcane?

NSW most of the cane is burned prior to harvest. This is carried out to remove all loose and dead leaves, dried out weeds and extraneous matter to facilitate the harvest operation.

Pre-harvest burns are usually fast, hot fires, with tremendous updraught that carry large carbonaceous ash particles high into the air. These ash particles (called "black snow") can be carried a considerable distance by the breeze and can be a nuisance when they land on washing on the line, the newly cleaned car or in the swimming pool.

Burning of cane is a long-standing practice.

In the days of hand cutting, nearly all cane was cut "green" and the remaining trash (leaves and tops) was burnt afterwards. With the advent of Weil's disease (or Leptospirosis) - a debilitating condition to the cane cutters that is carried by wildlife and spread by rats - burning of the cane prior to harvest helped control the spread of the disease. Since the introduction of this practice Weil's disease has all but disappeared from cane growing areas.

During the war years, 1939 - 1945, manpower became critically short, and pre-harvest burning was adopted as a labour-saving necessity.

After the war, through the fifties and sixties, the practice continued as the new generations of cane cutters could not and would not cut cane green.

Indeed, most people didn't want to cut cane at all and the degree of manual work gradually decreased. This saw the introduction of mechanical cane harvesters and the entire crop is now cut mechanically.

### ***So why can't you just stop burning?***

NSW is unique in that much of the cane (up to 75%) is cut at two years old because of the temperate climate. Two-year-old cane is high yielding, carries a significant trash load and is usually sprawled or fallen over.

The cane growing areas in NSW are the furthest south in Australia and the climate is cooler and wetter than in Queensland. When such crops are harvested green the very thick trash blanket left on the soil surface has been proven to having a significant negative impact on productivity because soil temperatures are lowered which inhibits re-growth (ratooning) of the cane crop.

### ***So why not cut the cane green and burn the trash afterwards?***

Burning the trash after harvest would be easier, however, these post-harvest fires are usually hot and slow burning with a varying degree of combustion. As such they produce dense smoke and mainly fine particulate matter which can cause visibility problems and may aggravate respiratory conditions. This is not the answer.

## Are canegrowers allowed to burn sugarcane?

Yes, cane farmers have the legal right to burn cane. Burning of cane falls under the provisions of the *Rural Fires Act 1997* and the *Environmental Planning and Assessment Act 1979*.

The Rural Fires Act defines a general “Bush Fire Danger Period” which normally runs from 1 September to 31 March of the following year and during this period a permit is required for all cane fires.

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### ***Notification to Neighbours.***

Farmers are required to notify their immediate neighbours at least 24 hours before they light a cane fire. This notification can be written or verbal.

## What is the NSW sugar industry doing about it?

The industry is continuing to find a solution to the burning question. A tremendous amount of research has already been done and a number of critical areas have been identified that need to be resolved if whole of crop harvesting is ever going to succeed.

Attempts to process the whole crop through the sugar mills was uneconomic due to the losses associated with the additional biomass (trash) in the cane.

### ***Smoke and Ash Management.***

Smoke and ash from cane burning can be a nuisance and care is taken to minimise community impacts. Determination of downwind sensitive areas that could be affected by burning fields is important to help reduce the impact of ash fall out.

Wind direction, wind velocity and air temperature inversion layers drastically affect smoke and ash management and care is taken to avoid burning during unacceptable times and weather conditions. Farmers monitor wind direction and velocity, along with predicted changes, before fields are burned. However, winds can be unpredictable resulting in unintended impacts.

Therefore, this additional trash will need to be separated from the cane after harvest via a trash separation process.

Sunshine Sugar in partnership with the Queensland University of Technology and Sugar Research Australia is involved in a \$1.25 million project to test and prove a mechanical trash separation system.

## What can we do?

In keeping with the strong sustainability focus of our beautiful region, you can support the renewable energy program already in place by electing to pay a 'green' premium for your electricity.

Not many people are aware but the Northern Rivers is home to the two biggest renewable energy power stations in Australia.

These are owned by Cape Byron Power, are located at the Broadwater and Condong mills

and are capable of meeting the total electricity demand of the region at certain times.

Your support of this important local industry would allow these power stations to operate all year round and significantly improve our regional sustainability without having to invest in any additional power generation infrastructure.

## Going forward...

Our industry always seeks a better way. Our efforts to resolve the burning question have intensified on all fronts - growing, harvesting, transport and milling and will continue.

We will continue to solve our problems in the future, as in the past and we will find the solution with your support.

## Still have questions?

For more information and advice on the NSW sugar industry:

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