



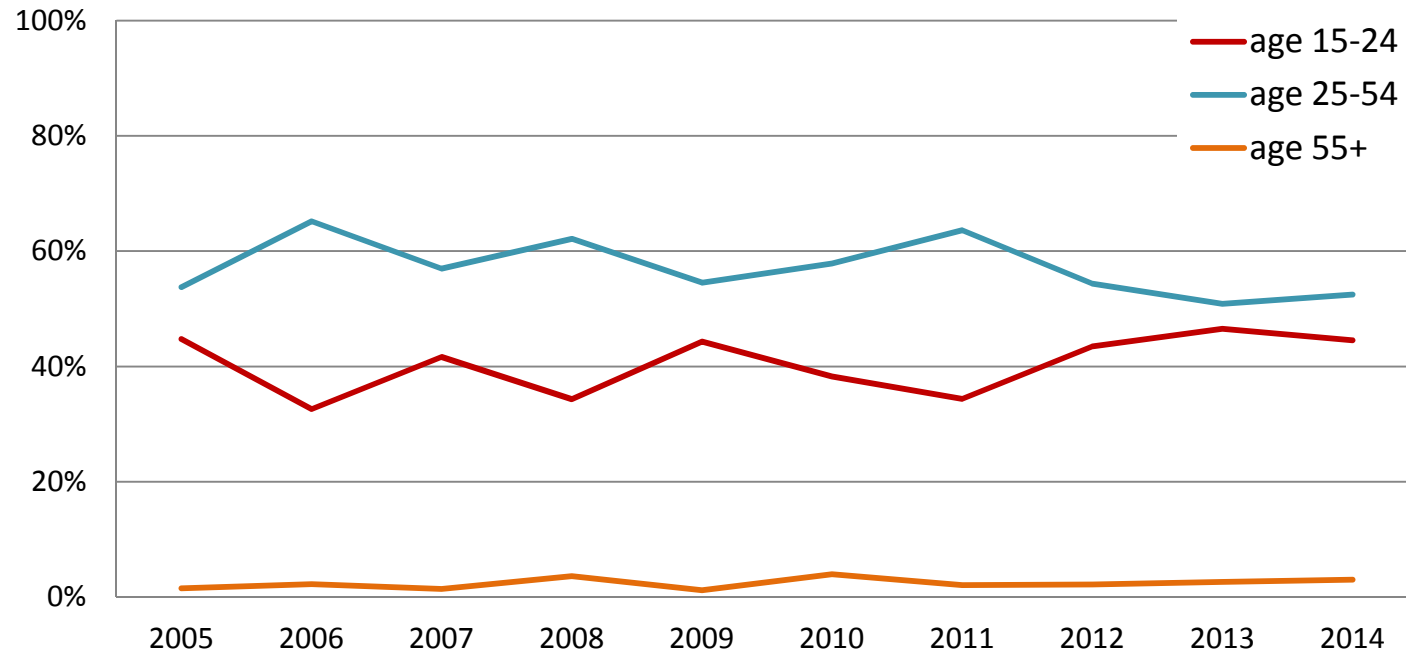
Demographics

of the tree planting workforce,
injury claims, and self-reported
fatigue and minor injury:

Age group & gender
as factors in work-related
risk-taking and injury



Percentage of claims by age group for 2005-2014



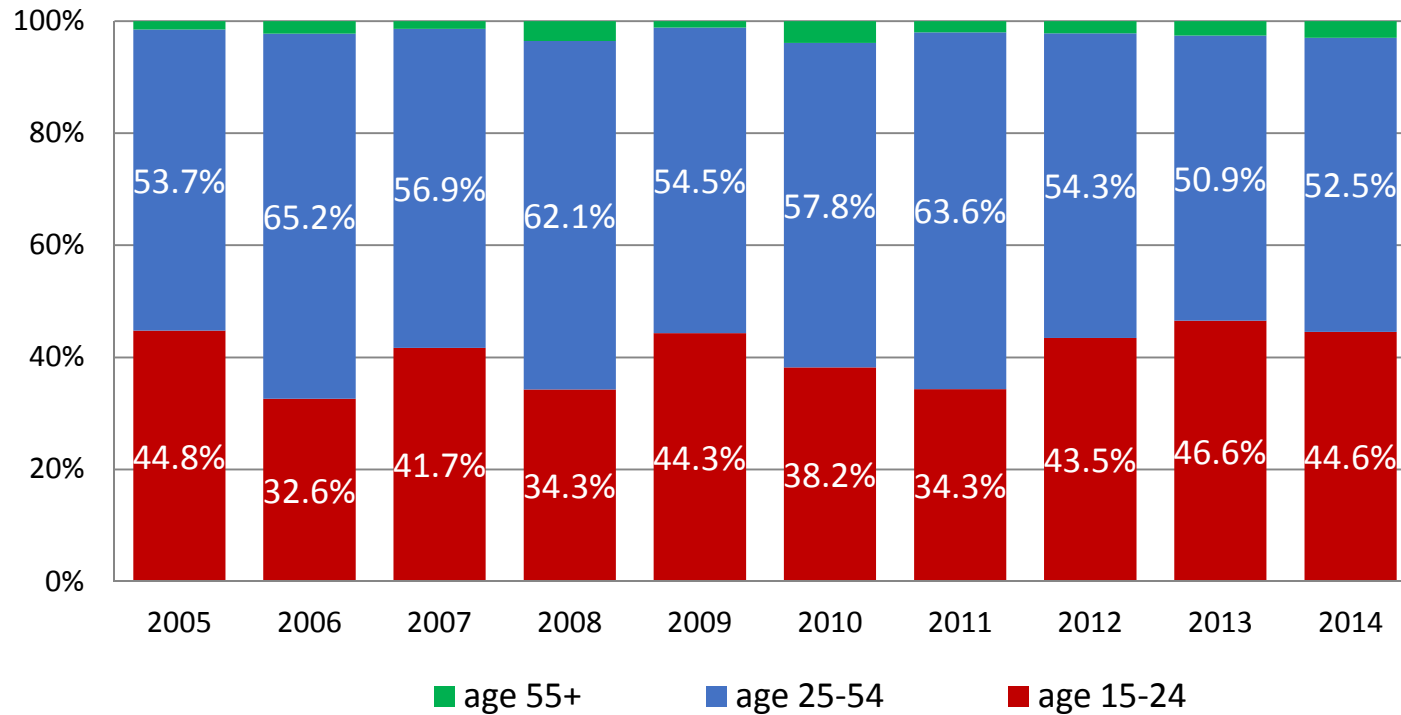
Which age group gets injured the most?

Contrary to what one might expect, it is **not** mainly the young and inexperienced workers who are getting hurt. The majority of claims come from **workers in the 25-to-54 year-old age group**.

And that has been the case at least for the past 10 years.



Percentage of claims by age group for 2005-2014



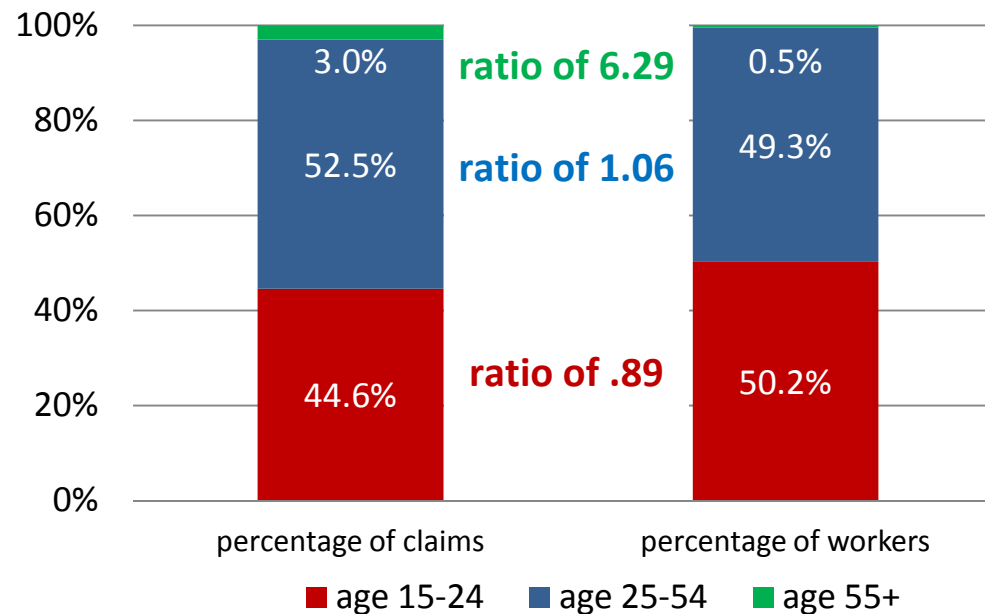
Which age group gets injured the most?

Contrary to what one might expect, it is **not** mainly the young and inexperienced workers who are getting hurt. The majority of claims come from **workers in the 25-to-54 year-old age group**.

And that has been the case at least for the past 10 years.



Distribution of injury claims vs. workers by age group (2014)



Perhaps the group with most claims is simply the group with most workers?

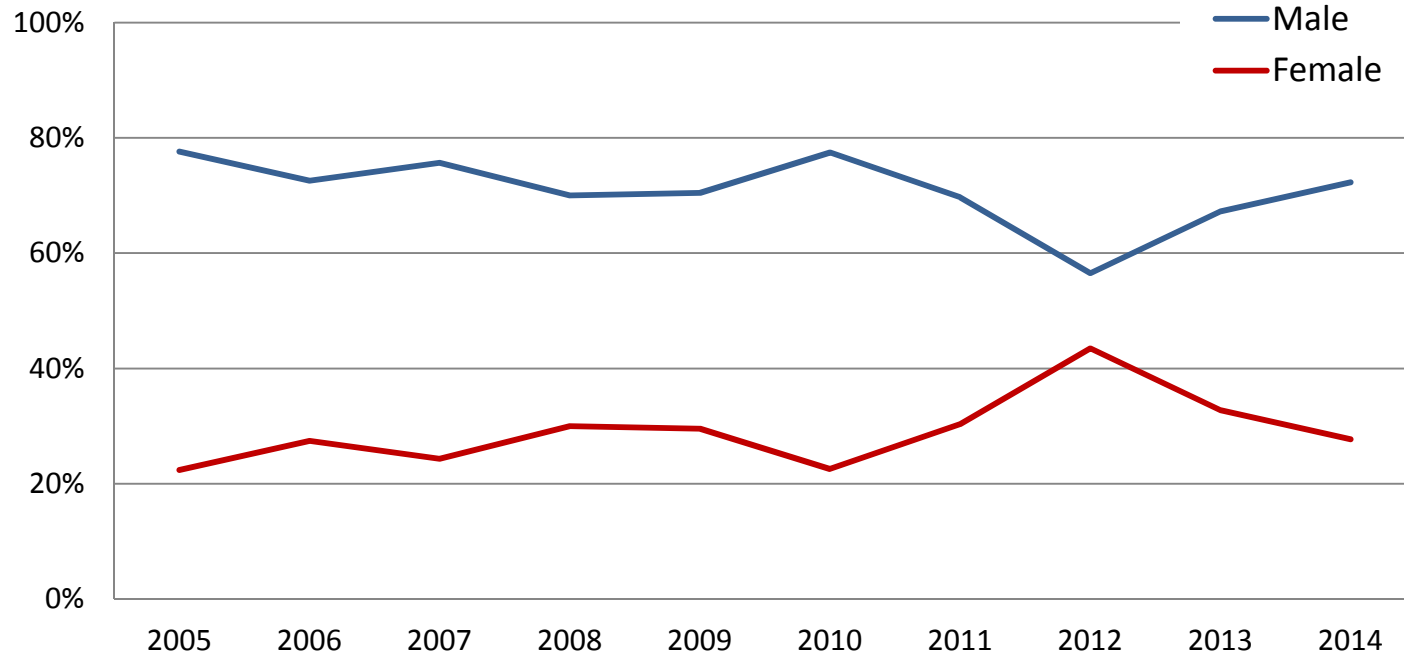
The bar on the left is the claims data from 2014 (as seen on the previous graph).

The bar on the right shows the distribution of workers by age group based on the silviculture survey data collected by the WSCA last year. It shows the age demographic profile of the population of tree planters.

Based on these numbers, we can tell, for example, that 44.6% of claims (those made by workers aged 15-24) come from 50.2% of the actual population of workers. Having both sets of numbers allows us to calculate the ratio for each age group – when this ratio is below 1, it means that disproportionately **fewer** people from that group are getting injured compared to the other groups. Conversely, when the ratio is above 1, it means that disproportionately **more** people from that group are getting injured.

Based on the ratios above, it is clear that – if anything – the young people are **under**-represented in the claims. The **older** workers and even more so the **mature** workers (though they are very few in numbers) are at least as likely, if not more likely, to suffer injuries.

Percentage of claims by gender for 2005-2014

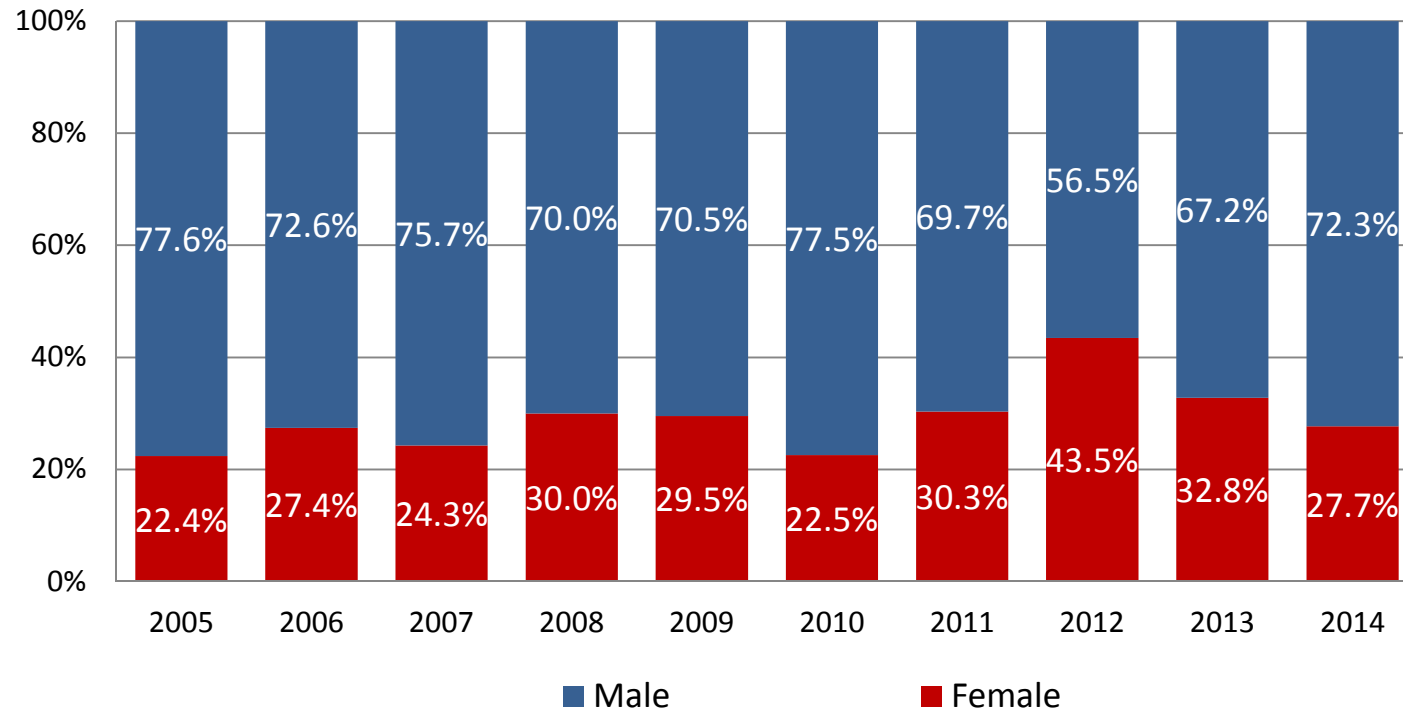


Which gender gets injured the most?

The majority of claims come from **men**.



Percentage of claims by gender for 2005-2014

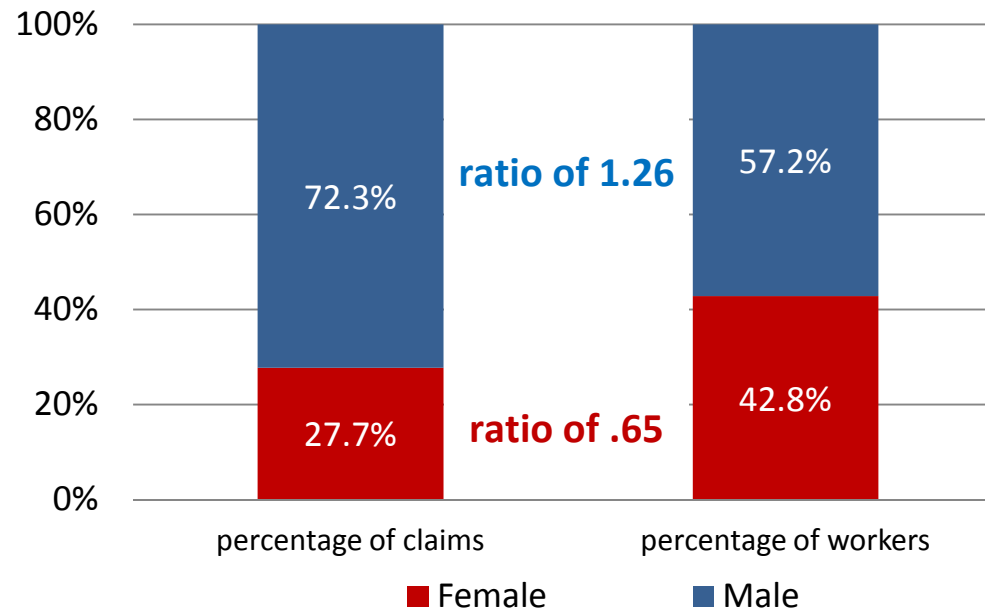


Which gender gets injured the most?

The majority of claims come from **men**.



Distribution of injury claims vs. workers by gender (2014)



Perhaps this claims ratio reflects the greater number of male tree planters?

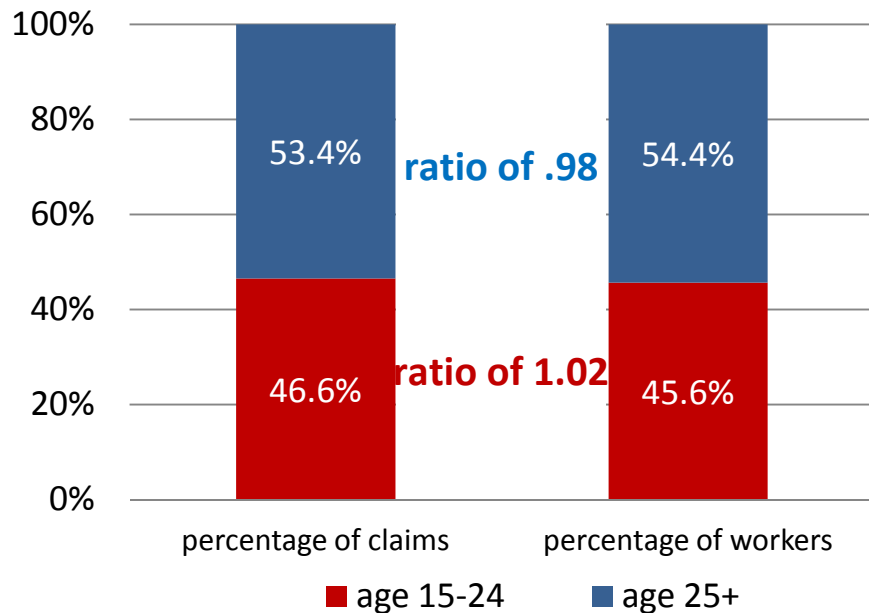
The bar on the left is the claims data from 2014 (as seen on the previous graph).

The bar on the right shows the distribution of workers by gender based on the silviculture survey data collected by the WSCA last year. It shows the gender demographic profile of the population of tree planters.

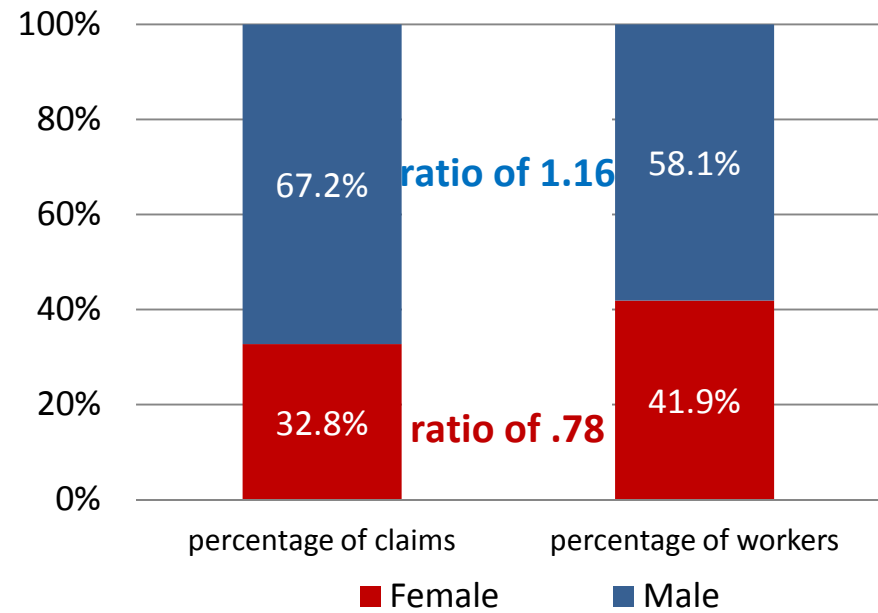
While it is true that there are more men than women, the difference between percentage of male and female workers is not nearly as big as the difference between male and female claims. Thus, even though women comprise almost half of the work force (42.8%), only 27.7% of the injury claims were made by women.

The ratios between the percentage figures above indicate that female workers are **under**-represented in the claims – it is the **male** workers who suffer injuries (or at least who report them).

Distribution of injury claims vs. workers by age group (2013)



Distribution of injury claims vs. workers by gender (2013)



Are the age and gender trends confined to 2014?

Injury claims data – broken down by age and gender – is available at least as far back as 2005. However, this data is difficult to interpret on its own, without reference to the population demographic. This is one reason why the worker survey data is so important.

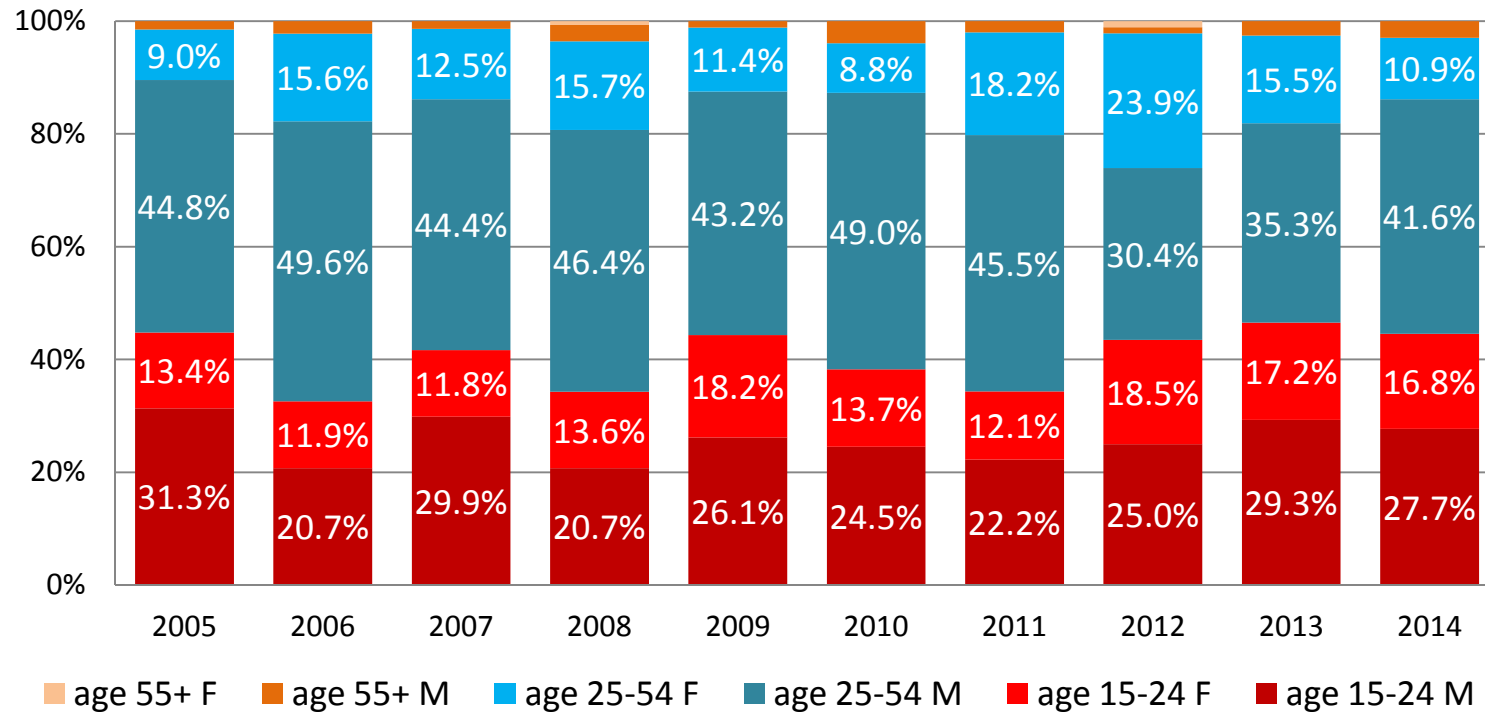
The WSCA conducted a similar survey in 2013 as well. Data from that, combined with the corresponding claims from that year are presented above.

Similarly to what was seen for 2014, the ratios between the percentage figures indicate that the **young workers** do **not** get injured more than older workers. In fact, in 2013, the representation of younger vs. older workers in the claims mirrored their representation in the population – showing that the two age groups suffer from injuries to the same extent.

Also similar to the trends seen in 2014, in 2013 more injuries were claimed by **male** than female workers (even after controlling for their greater numbers in the population).



Percentage of claims by age group and gender for 2005-2014

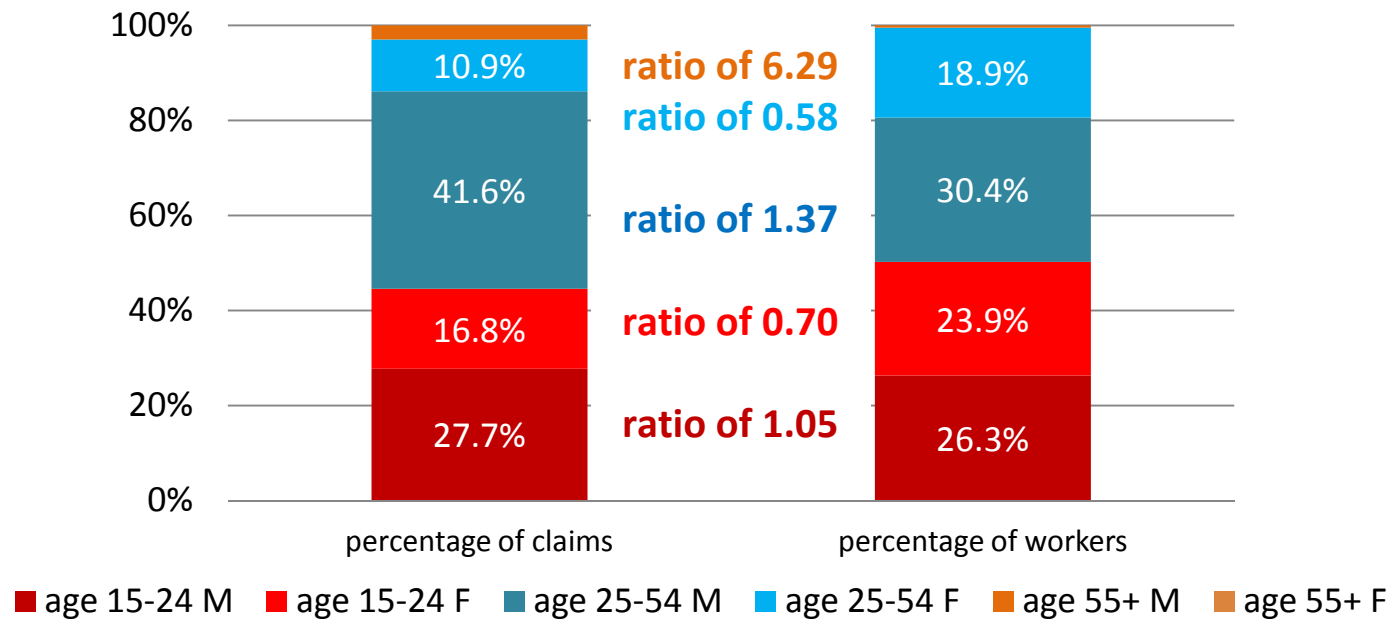


Which combination of age-group and gender gets injured the most?

The majority of claims come from **men**, especially in the **25-to-54 year-old** range.



Distribution of injury claims vs. workers by age group and gender (2014)



How does that compare to the demographics of the population?

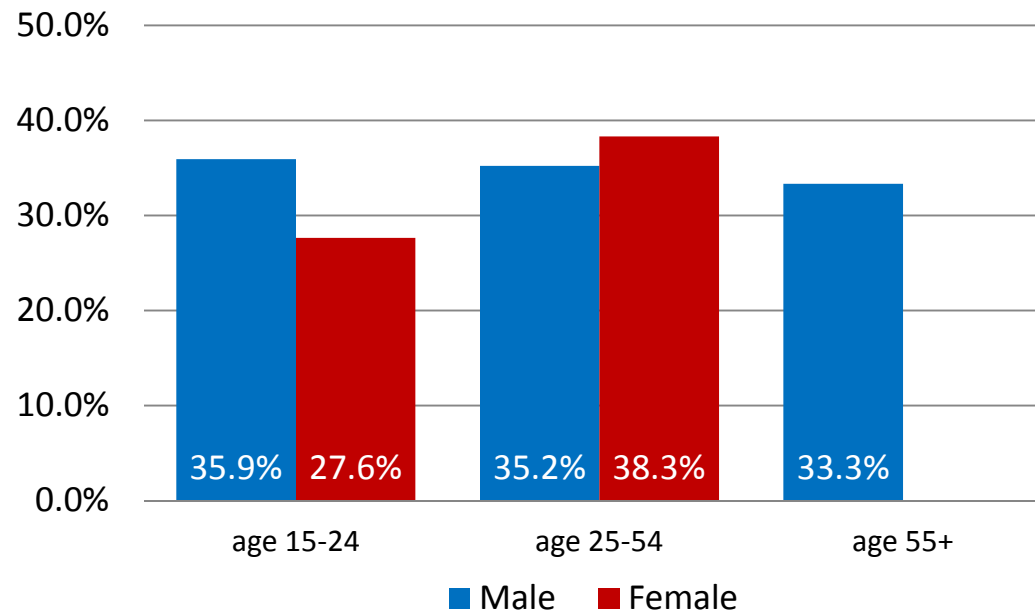
As before, the bar on the left is the claims data from 2014 (as seen on the previous graph) and the bar on the right shows the age **and** gender demographic profile of the population of tree planters. The ratios in the middle indicate how the claims demographics compare to the population demographics.

Other than the **male mature workers** (who are few but even among those few there are injuries), the most notable group is the **male workers aged 25-to-54** – they account for a disproportionately **large** portion of the injury claims.

Note also that the group of workers whose ratio is the smallest – that is, the ones who make **the fewest claims** given their contribution to the population – are **young women** (15-to-24 years old). It is unclear, however, whether they are getting injured the least or they are simply not making injury claims.



Extreme fatigue reports by age group and gender (2014)



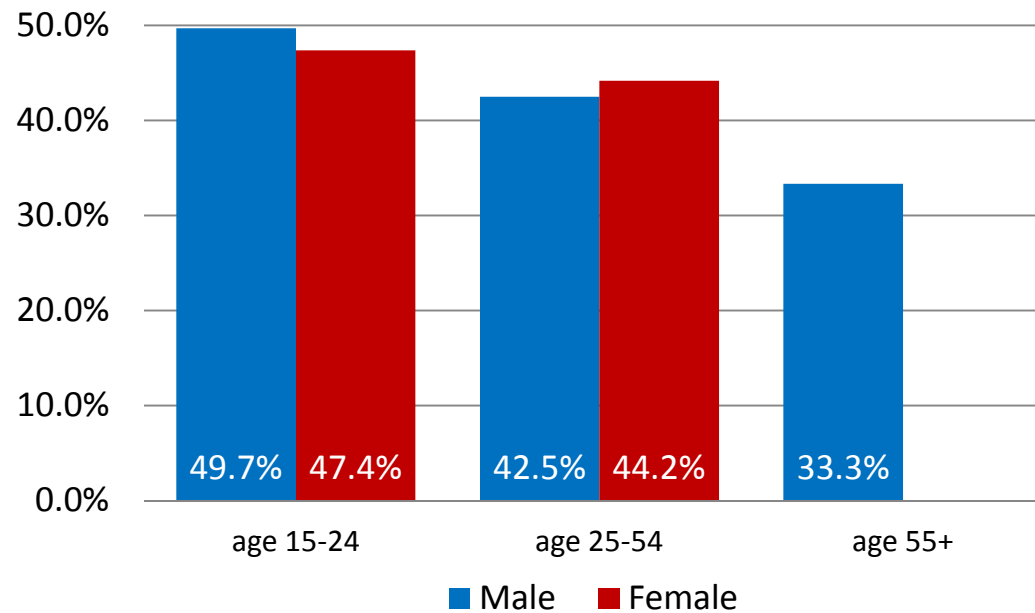
Do tree planters work to exhaustion? Which age group / gender?

The data shown above comes from the WSCA 2014 worker survey. It shows the demographic profile of workers who reported to have *“worked to the point where fatigue may have affected their safety”*.

The percentages are pretty similar across age groups and gender – about **one third of the workers** feel they work to exhaustion.



Reports of minor injury by age group and gender (2014)



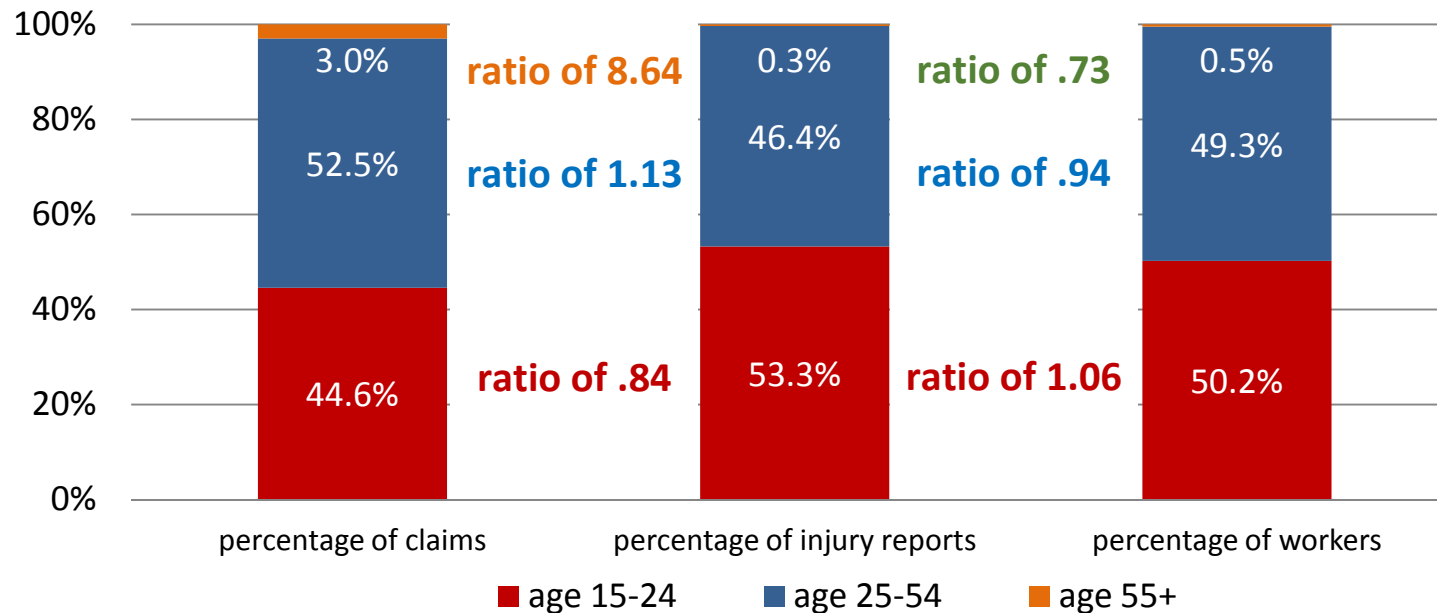
Do tree planters work even with minor injury? Which age group / gender?

The data shown above again comes from the WSCA 2014 worker survey – this is not claims data but rather informal reports of minor injury. It shows the demographic profile of workers who reported to have “*suffered from an injury but toughed it out and did not take time off work*”.

Differently from the fatigue data which was similar across age groups and gender, there seems to be a trend here such that **younger workers tend to ignore minor injuries** more than older workers; gender doesn’t seem to be a factor.



Distribution of injury claims vs. reports of minor injury vs. workers by age group (2014)

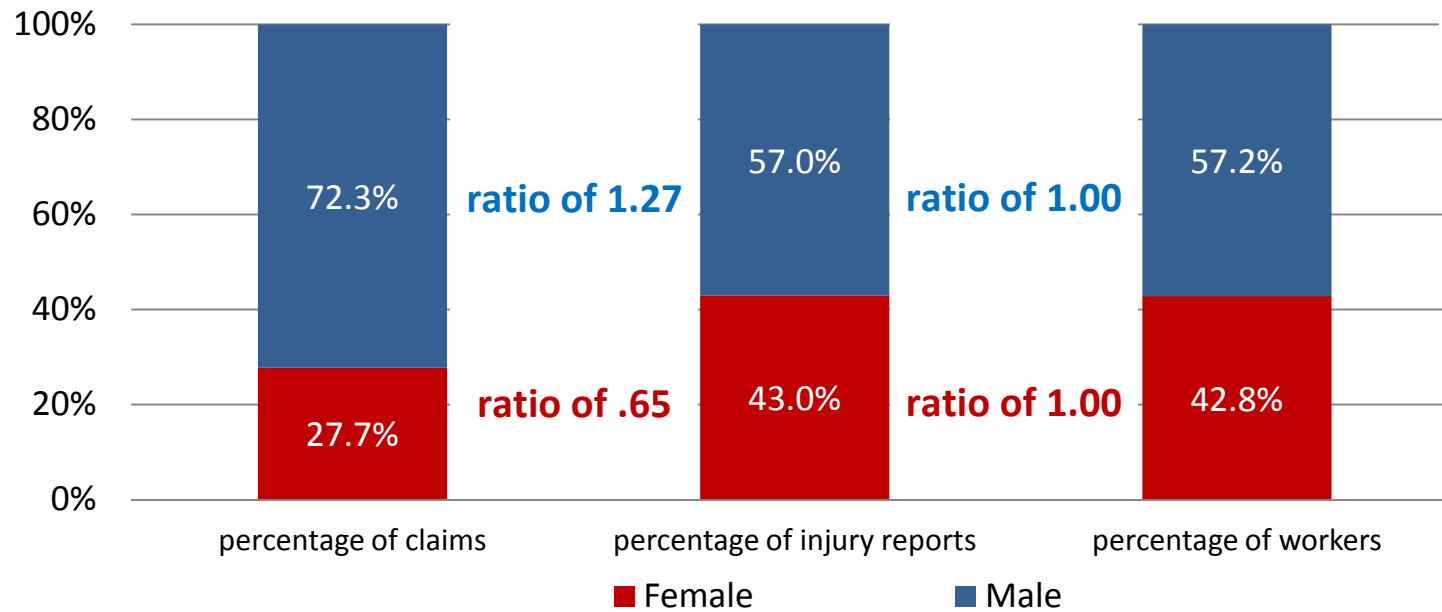


How do reports of minor injuries relate to serious injury claims?

The leftmost data is the distribution of claims by age group (as seen before) and the rightmost data is the distribution of tree planters by age group (again as seen before). The data in the middle shows the age demographic profile of workers who reported to have “suffered from an injury but toughed it out and did not take time off work”. As noted before, there is a trend for the younger workers to work through minor injuries; this relationship with age is reversed in the injury claims data – the young workers who are slightly **over**-represented in the reports of **minor injury** are **under**-represented in the **injury claims**, suggesting that despite the fact that they often work while injured that does not seem to lead to serious injuries.



Distribution of injury claims vs. reports of minor injury vs. workers by gender (2014)



How do reports of minor injuries relate to serious injury claims?

What about gender? Same data as on the previous graph, only this time broken down by the gender demographic. As noted before, **men and women tend to work through minor injury equally often** (perfect ratios of 1 between the gender profile of the work force and the gender profile of the injury reports).

This is in contrast with the claims data, which clearly shows the tendency for **male workers** to **suffer serious injuries** more than female workers, above and beyond their greater numbers in the work force.

In conclusion, there does **not** seem to be a relationship between reports of minor injuries and injury claims.

Conclusions



- About **one third of the workers** feel they work to exhaustion, to the point where fatigue may compromise their safety. This is true for **all workers**, independent of age or gender.
- Almost **half** of all workers (45.8%) report to go to work despite minor injury. Gender is not a factor: **both men and women** are equally likely to take the risk of working while injured. However, age IS a factor: **younger workers** are more likely to work with minor injury than older workers.
- There is NO relationship between these reports of minor injuries and serious injury claims.
- The tree planters who tend to **get injured the most** (even after accounting for their larger numbers in the population), are **male workers who are over 25 years old**. This is consistent with reports from *WorkSafeBC* which describe the typical injury claimant in tree planting to be 25-to-44-year-old male.
- The tree planters who tend to **get injured the least** (even after accounting for their fewer numbers in the population), are **young female workers**.



Self-report Data

- It is important to keep in mind that both the claims data and the survey data are self-reports, and they may suffer from **self-selection bias**
 - With respect to injury claims:
 - Perhaps men are more likely to file a claim than women.
 - Similarly, perhaps older workers are more likely to file a claim than younger workers.
 - If there is such a bias, it will skew the demographic of the claims giving a false impression of injury rates across age and gender.
 - With respect to the survey:
 - Perhaps women are more likely to participate in a survey than men.
 - Perhaps younger workers are more likely to participate in a survey than older workers.
 - If there is such a bias, it will skew the demographic of the survey sample giving a false impression of the distribution of age and gender in the worker population.
- An additional concern with the survey data is the possibility of **self-report bias** (such as *social desirability*).
- Both the reliability and validity of this kind of data is strengthened by **repeated sampling** – in other words, if this type of survey continues to be administered every year, we can be confident that the data gathered is true of the population of workers. (Already, the data from 2013 and 2014 are consistent with each other.)