Almond profit sensitivity analysis

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```
# read in and clean data
clim <- read.table(here("data", "clim_original.txt")) %>%
  clean_names()
```

```
deviation <- .15
base_a <- 0.015
base_c <- 0.07
nsamples <- 300

a_vec <- runif(
  min = base_a - deviation * base_a,
  max = base_a + deviation * base_a,
  n = nsamples)

c_vec <- runif(
  min = base_c - deviation * base_c,
  max = base_c + deviation * base_c,
  n = nsamples)

deviation <- .15
base_price <- 1000
nsamples <- 300

price_vec <- runif(
  min = base_price - deviation * base_price,
  max = base_price + deviation * base_price,
  n = nsamples)

deviation <- .15
base_discount <- .15
nsamples <- 300

discount_vec <- runif(
  min = base_discount - deviation * base_discount,
  max = base_discount + deviation * base_discount,
  n = nsamples)

params <- tibble(
  a = a_vec,
  c = c_vec,
  price = price_vec,
  discount = discount_vec)
```

```
results <- params %>%
  pmap(almond_yield_profit,
       df = clim)

mean_annual_npv <- map_df(results, `[`, "mean_npv") %>%
  cbind.data.frame(params)
```

```
price_plot <- ggplot(mean_annual_npv, aes(x = price, y = mean_npv)) +
  geom_point() +
  labs(x = "Price", y = "NPV (mean)")

discount_plot <- ggplot(mean_annual_npv, aes(x = discount, y = mean_npv)) +
  geom_point() +
  labs(x = "Discount Rate", y = "NPV (mean)")

a_plot <- ggplot(mean_annual_npv, aes(x = a, y = mean_npv)) +
  geom_point() +
  labs(x = "a (temp coefficient 1)", y = "NPV (mean)")

c_plot <- ggplot(mean_annual_npv, aes(x = c, y = mean_npv)) +
  geom_point() +
  labs(x = "c (precip coefficient 1)", y = "NPV (mean)")

p <- price_plot / discount_plot | a_plot / c_plot
p + plot_annotation(
  title = 'Informal sensitivity analysis',
  subtitle = 'Almond yield net present value (NPV) vs parameters') &
  theme_minimal()
```

Informal sensitivity analysis

Almond yield net present value (NPV) vs parameters