Optimal number of firms with land:

$$\max_k \; k f\left(\frac{h}{k}, \frac{l}{k}\right) \quad \text{with } f(h,l) = A(h-c)^{\alpha} \, l^{\overset{\text{no fixed cost for land}}{\beta}}$$

$$\frac{d\left(kf\left(\frac{h}{k}, \frac{l}{k}\right)\right)}{dk} = f\left(\frac{h}{k}, \frac{l}{k}\right) + k \cdot A \cdot \alpha \left(\frac{h}{k} - c\right)^{\alpha - 1} \left(\frac{l}{k}\right)^{\beta} \left(\frac{-h}{k^2}\right) + kA\left(\frac{h}{k} - c\right)^{\alpha} \beta \left(\frac{l}{k}\right)^{\beta - 1} \left(\frac{-l}{k^2}\right)$$

$$= \underbrace{A\left(\frac{h}{k} - c\right)^{\alpha} \left(\frac{l}{k}\right)^{\beta}}_{\neq 0 \text{ if production zero}} \underbrace{\left(1 + k\alpha\left(\frac{h}{k} - c\right)^{-1}\left(\frac{-h}{k^2}\right) + k\beta\left(\frac{l}{k}\right)^{-1}\left(\frac{-l}{k^2}\right)\right)}_{} \overset{!}{=} 0$$

$$1 = k\left(\alpha \frac{h}{k^2\left(\frac{h}{k} - c\right)} + \beta \frac{1}{k}\right)$$

$$1 = \alpha \frac{h}{h - kc} + \beta$$

$$\frac{1-\beta}{\alpha} = \frac{h}{h-kc}$$

$$\frac{\alpha}{1-\beta} = \frac{h-kc}{h} = 1 - \frac{kc}{h}$$

$$\Rightarrow \frac{kc}{h} = \frac{1-\beta}{1-\beta} - \frac{\alpha}{1-\beta} = \frac{1-\beta-\alpha}{1-\beta}$$

$$k = \frac{h}{c}\left(\frac{1-\beta-\alpha}{1-\beta}\right)$$